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THE PACIFIC RURAL PRESS

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SAN FRANCISCO, SATURDAY, JANUARY 4, 1913.

Forty-Third Year.

The Draft Horse Breeder and the City Buyer.

[Written for the PACIFIC RURAL PRESS by W. M. CARRUTHERS.]

The demand for draft horses is a development of modern commercial conditions. The congestion of the streets of the great cities and the increase in the bulk and weight of the goods to be hauled, precludes speed in transit in almost all thoroughfares. From this came the call for horses of sufficient weight and strength to move these heavy loads.

To show how great a factor the draft horse now plays in American commerce, it may be said that if he should be suddenly extinguished the railroads would be temporarily forced out of business for lack of power to transport freight from warehouse or factory to the ears.

For years back some of the great mercantile firms have been using the draft horse generally to advertise their business. They use teams of the very best class of drafters on the streets to make a fine show as well as to haul great heavy loads. The International Live Stock Show at Chicago established in 1900 has created an insistent and never-satisfied demand for these big horses and forced prices skyward, little dreamed of in the trade. Today the heavy drafter still holds his pride of place as the horse commanding the most ready sale at prices relatively higher than are brought by any other sort.

The farmer can make a larger profit on draft horses than on any other kind he can breed. The way the farmer can get the best price for the draft horses he breeds is to have them well broken and fat. The fatter and better broken they are the better they will sell. In a great many of our big cities buyers that are sent out to buy horses for heavy work on the streets are men unskilled and untrained in the points of a good draft horse. The first thing he looks at is the condition of the horse, and if he is fat and weighs over the standard that he has been given as a weight to be governed by, he will then try and buy the horse. Many of our farmers have just the horses that these men want, but the farmer has neglected to make a dollar a pound on the weight of his horse before he has offered him for sale.

If our city buyers and farmers would work together a little more mutually, both parties might be served a good deal better than they are at the present time. A fifteen hundred and fifty pound horse in hard flesh and with a good, clean, flinty bone below him will serve the purpose of the city man much better than a seventeen hundred pound horse loaded down with a hundred and fifty pounds of alfalfa fat on him. The first mentioned horse will work on the streets and stand the work; the other horse in six weeks will lose that hundred and fifty

pounds of alfalfa fat and will then be rated as a poor feeder and not able to stand the city work, and the man that sold him will be condemned by the city buyer as a breeder of poor stuff and he will buy no more from this man. The fact of the matter is, the trouble is not with the horse at all, but lies with the farmer and the city man, so if the get-together proposition was more advanced and coached along, conditions would be better all around.

The draft horse business in the State of California requires a great deal of encouragement along educational lines. There would be no mistake if the whole five thousand dollars that is still in the State Farm

treasury be put into the draft horse business. The farmers should see that the animal husbandry department of our university has a practical horse man at the head of its department. Our city buyers would do well to have a thoroughly competent horse man buy their drafters. He would make them money on every purchase made.

When the farmer determines to breed draft horses he should remember that nothing under sixteen hundred pounds is considered one, and that the greater the weight with quality and shapeliness, the higher the price. Many of our large draying firms are always actively in the market

for the best class of drafters. To get the big money, however, it is necessary always to offer something buyers want. If the farmer caters to the needs of the poor teamster he ekes out a more or less scanty living by the labor of his equine slave, and need never expect to get the prices which are secured by the breeder who caters to the wants of firms worth millions.

No matter how high a breeder aims, he will always get some misfits. If he aims to breed the very best drafters, he will get always a certain proportion of chunks and wagon horses. If he sets out to breed any lower grade he will get enough poor ones to put a serious crimp in his receipts.

In order that farmers may get a correct idea of the drafters that bring the big money and of the kind they should strive to produce, there is no method of education so good as to attend our big live stock shows at which drafters are exhibited. He should also make a thorough investigation of the every-day demands of the market at any one of our wholesale centers. By following closely the awards of the judges and by asking questions of representative horsemen when he is puzzled, the farmer will acquire valuable information he will never obtain at home. Be not afraid to approach the judge after his work is done. Judges nowadays are generally perfectly willing to impart, on request, such knowledge as they possess. Get out and see for yourself. Money spent on making trips to great shows and markets need not be charged up to expense, but with all legitimacy to capital account.



Shire Mare and Colt, Owned by Henry Wheatley, Napa.

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CALIFORNIA WEATHER RECORD.

The following rainfall and temperature record is furnished the PACIFIC RURAL PRESS by the United States Department of Agriculture, Weather Bureau, at San Francisco, for the week ending at 5 P. M., Dec. 31, 1912:

Stations.	Rainfall Data.			Temperature Data.	
	Past Week.	Seasonal to Date.	Normal to Date.	Maximum.	Minimum.
Eureka .....	.78	16.69	16.89	56	34
Red Bluff .....	.01	8.27	10.08	58	30
Sacramento .....	.7	2.85	7.12	60	34
San Francisco .....	.13	4.96	8.30	56	44
San Jose .....	.02	1.64	6.22	62	26
Fresno .....	.00	1.30	3.55	64	30
Independence .....	.00	.70	3.51	68	12
San Luis Obispo .....	.00	1.07	5.86	68	30
Los Angeles .....	.00	.94	5.21	72	44
San Diego .....	.00	1.71	3.17	66	40

The Week.

As we write a little early this week, to give the printers New Year's joys and a chance to frame up a lot of stiff resolutions that they will make fewer mistakes with our manuscript during the coming year, there seems to be a great treat overhanging California in the form of a storm which began by twirling and soaking things in the Portland region and showed spite and strength enough to sweep southward over the whole of California. If it gets here in good measure before the end of the week, the State will certainly enter upon the New Year with a rush of delight and confidence which is glad to anticipate. We were out in the State quite widely last week and it did not take close looking or listening to learn that water is the thing most anxiously awaited. Last year's shortage, of course, adds keenness to the present need, but, on the other hand, the amount of early dry work which has been done by teams and tractors insures the highest duty of water which this or later storms will bring. This year is, however, so far much better fixed than last in the heavier early rains over the northerly half of the State, and people are generally in good heart in anticipation of all the water needed to bring the winter's activity to satisfactory fruition. It is not a time to doubt and hold back, but to go forward. We have seen many years during which people have had to kick themselves all summer because they allowed themselves to get rattled by a dry holiday season.

The Livery of Heaven.

We print on another page an exceedingly interesting statement of the aims and purposes of the California Associated Societies for the conservation of wild life, and call attention of our readers to its proposed undertakings before the legislature which will assemble next week. This whole matter would command more enthusiastic interest among California farmers if it could be wholly divorced from conservation for the purpose

of killing. Conservation for the purpose of keeping alive so that all could have the joy of seeing wild beasts and birds by going to State preserves, where they could be kept for study and in such a way that their marauding instincts could be satisfied in a natural way by preying upon each other—such a proposition would command support from farmers, for they are known to be of all people most liberal when expenditure has a pure educational purpose. But when conservation is to be administered in such a way that the farmer is required to keep his own lands as a state game preserve and is obliged to face wild life with his crops and satisfy marauding wild life with his lambs and poultry, he has to doubt whether such a requirement is fair to him. But when the propositions are connected up with "game regulations" which mean conservation in order that hunters may have certain times of the year to roam over farm lands, break down fences, trample crops, stampede and often actually shoot farm stock—that is an aspect of conservation which causes the farmer to believe he is seriously imposed upon and made to pay for the imposition, above and beyond all the incidental injuries he has to bear. We have nothing to urge against sport, except that farmers ought not to bear the burden of it without compensation. Let the state secure preserves and bear the cost of maintaining them and make them places for public instruction and enjoyment and then let wild life away from these preserves be shot by whoever wishes to go after it, whether they be farmers, hunters or what not. This would conserve wild life and it would make California a much better place to do farming. It would relieve farming from the great losses which it now has to carry. It would win their support and not make farmers ugly as they are because the livery of heaven, in the form of conservation of wild life because of its beauty and beneficence is being stolen to cloak the killing instinct which seeks only its own gratification, and breeds and conserves only that there may be more killing. Marauding wild life should be killed once for all except in places ordained for its preservation.

The Game Laws.

Speaking thus about the agricultural view of saving wild things, reminds us that the legislature which will meet next week will have much to do with the revision of the game laws. The Fish and Game Commission has been at work all summer in bringing its points of views and claims of value in wild things to the attention of the people and has pursued a very wise course for which the Commission should be given credit. It has evidently been trying to get a right view of things which come within its scope. If it fails to do so and if it comes to advocate things which work hardship to farming, it may be because the farmers who know these things do not bring them forward sufficiently enough. It therefore behooves farmers and farmers' organizations to get busy this winter. According to the new plan for making laws which will go into effect this winter the legislators will assemble in Sacramento for a time to receive bills which are to be introduced and then the members will return to their homes for meditation to assemble later in Sacramento to enact whatever seems feasible and desirable. This will give all the people a chance to tell their representatives how proposed measures affect their interests. Those who have corrections on game laws should get their work in during this interval if they have not previously done so. Last week in Sacramento representatives assembled from the third fish and game district, including 14 counties, and the way they pulled feathers off some of the protected birds was a caution to cats. Some del-

egate insisted that the ban on the killing of black-birds, meadow larks and robins, should be lifted in the third fish and game district. We do not try to decide that this would be wise, but use the fact to call attention to the opportunity to do something to get these things settled in the interests of the greatest numbers of people whose industry are affected.

California Products.

We have on another page of this issue some figures which have long been awaited, to wit: the amounts and values of California farm products at the time of the U. S. Census taking, in 1909. These statistics are comparable with those of 1899 and the statement is made that the State has advanced sixty per cent upon the attainment of that year—which is a pretty good gain, as gains go, but considering the rapid development of the last decade, this figure is not over the mark. The total value of our farm products which is placed for 1909 at \$153,111,000 must be interpreted for the benefit of those who have been luxuriating in a total of more than \$400,000,000 as the measure of our annual agricultural output. It may be said that it is the custom of the government statistician to aim at what is called the "farm value" of products while the developers enjoy better than "market value" which means what the product sells for after all costs of handling, including transportation, are added. If the farm value is only a little more than one-third of the market value it shows that there is a lot of money paid by the consumer which the farmer does not get. This, of course, unavoidable; the only question is whether the farmer gets as much as he ought to and no one can ever find that out unless the farmer himself tackles the job by proper organization. In a way it is right for the total farm output of California to be valued at \$400,000,000 because the greater part of it is a contribution which the farmer makes, by his enterprise and energy, to the support of the whole state and it represents not only what he gets for himself but also what he gives to everyone else from sack-sewer and box-nailers to railway magnate. Take then, the census figures for what the farmer gets and the developer's estimate for what he gives to others and you come as close to accuracy as you can in this imperfect world.

The Tariff Program.

Chairman Underwood, who proposes to uncover a number of California's protected products, if he can, gives notice that he is receiving numerous applications from men representing various interests to be heard on the subject of tariff reductions. These requests are coming in from every section of the country. The greatest interests seem to be manifested in the chemical, wool and agricultural schedules. The committee is desirous of getting the most complete information, and hearings, beginning Jan. 6, were given. The hearings will run through January, and the committee will begin framing the schedule resolutions in February, that all of them may be ready for presentation to the House by the middle of March, in the expectation that President Wilson will call the extra session at an early date. Thus the Democratic majority will have their own way and it becomes California to see to it that they do not lack information. They will be handicapped of course by the fact that between \$325,000,000 and \$350,000,000 will have to be raised by the tariff legislation of the next Congress to support the Government, or else they must provide an equal amount by an excise or income tax to meet part of the revenue necessities. Our Democratic friends seem to be up against it as they have been before.

We should certainly help them to get a hold on the right horn of the dilemma.

Pigs Must Have Clean Food.

It was doubtless started along through the ordinary newspapers as a joke, but we find it is exciting many unwary and credulous people, judging from the letters we are getting about it and it seems to be necessary to state clearly that good pork cannot be made in the way outlined. The plan is thus described: "One thousand acres in Contra Costa county has been leased by an organization comprising those who control the garbage exported daily from the bay cities. The land secured is said to be some of the choicest acreage in Contra Costa county and can be reached by barges. Hereafter much of the swill that is consigned to the bosom of the ocean outside the ten-mile limit will be segregated and that available for consumption by hogs will be towed to the Contra Costa ranch and used to fatten the company's pigs. When the pigs have been duly fattened they will be slaughtered and brought back to the point from which their provender originated. Thus a sort of perpetual gastronomical circle will be started which should be highly lucrative to the inventors and satisfactory to the pork dealers."

One might think that the last sentence would give the proposition away as a reporter's fake, but it is being taken seriously and we have to treat it that way. It is of course thoroughly impracticable. The proposed food will not make healthy hogs no matter how carefully it is segregated and standardized for two reasons: first it is impossible to make such segregation; second, the best of it, if it could be separated, would kill the pigs. Feeding a few pigs on clean swill is one thing and not a very good thing either, except as the cook loves the pig and selects things fit for him and keeps them separate. Feeding pigs on swill from hotels, etc., collected and carried some distance has been tried from time to time and has been unprofitable because of disease engendered in the hogs. These failures have followed considerable effort at selection of materials by using separate receptacles for different kinds of wastes. The use of common city garbage is therefore out of the question in the way proposed. It is worse than valueless for the purpose. Good pork must be made from clean, wholesome food.

Olfactory Accuracy.

The quality of a man's nose has agricultural value. This has been demonstrated by generations of wine-testing, tea-testing and not a few men in these lines have been knocked out of careers by a c'd in the c'd. The service of a good smeller in dairy manufacture is practically indispensable: in fact, if we are not mistaken, the refinement of dairy processes, makes good smelling all the more essential. These things being common truths, except as above providing for error, we are somewhat surprised to find that Judge Turner of Alameda county the other day was evidently disposed to order an expert to keep his nose out of a case of moldy hay. Now the aggrieved expert did the proper thing under the circumstances: he took his nose to another court on appeal and laid it before Judge Harris in this way: "He made fun of my testimony, but you buy hay for your ranch at Pleasanton, your honor, and you know that it has to be smelled before you are certain of its freshness. Judge Turner thought it was necessary only to look at the hay, and he laughed at me because I stuck my nose into the bale." Unfortunately the momentous question was not settled, for Judge Harris, like other judges, never settles a great question when a small one is enough. He ruled that inasmuch as the buyer had accepted the hay, although he had claimed

that it was musty, he must pay for it and ordered the defendant to pay \$175, which includes the cost of the suit. And so the nose remains up in the air, so to speak, but we all know that the best way to judge of the soundness of hay is to get your nose into the bale—or into a ham or into a piece of wild game, for that matter. It makes you almost sick to think what the nose has to stand for, but nothing can take its place on a man's face or elsewhere.

Queries and Replies.

Querists must submit full names and addresses.

The Irrigation of Alfalfa.

To the Editor: I would like to hear through the press as to the best way to install an electric motor, whether to put it at the bottom of a pit, or on the top of the ground and run the pump with a belt, the pit being anywhere from 20 to 30 feet deep. Could you let me know which is the best way to check land for alfalfa where there is a little slope, whether long narrow checks are the best, or whether square checks are best, and could you tell me whether or not alfalfa could be raised successfully here by running little ditches about three or four inches deep every 2½ or 3 feet apart, as they do in Oregon and Washington? When is the best time to sow alfalfa, and is it best to grow grain with it, or would you advise sowing it by itself?—C. E. S., Lockeford.

A motor is more effective when connected directly to the pump than when put at the top of the pit and connected by a belt. Long narrow checks are better than square checks, especially where the soil is at all heavy. Square checks are all right on level sandy soil, but where there is a moderate slope the long narrow checks are the best. They are also better than irrigating by the furrow system, which might be used in case the slope was too great for checks. The best time to plant will be after the hard frosts are over, though success can be secured by planting in almost any month from the time that frosts stop until they get bad again. The alfalfa should be sown by itself and if there is more than a small acreage the saving in seed and the securing of a better stand will more than make the use of a drill profitable.—D. J. W.

Walnut Growing.

To the Editor: I have read with care the section devoted to walnuts in your admirable "California Fruits," but am in doubt regarding some things, the answer to which I hope you will give in the Press:

(1) Should walnut trees be topped when set out in orchard form? I was told that the Franquette when grafted upon California black did not need topping, as the main shoot (trunk) gradually would taper to a terminal bud that would die when the tree got about 9 or 10 feet tall, which would thus prevent a growth too tall. (2) What is the best time to set out young walnut trees in orchard form? (3) Are young walnut trees injured by rabbits, like other orchard trees? (4) What variety of walnut is best adapted to localities north of San Francisco? Is irrigating advisable where the soil is sandy loam, with water at 6 to 7 feet? (6) Will you give me your opinion as to just what kind of an orchard Mrs. Emily Vrooman of Santa Rosa has and whether nursery stock whose scions have been taken from this orchard are better than trees of the same variety purchased elsewhere?—B. D., Kelseyville.

Walnut trees should not usually be topped when planted in orchard. If there are too many branches, surplus ones should be removed near the base where the wood is solid; sometimes lower branches should be removed in this way that the tree be not headed too low. The leader will take care of itself.

Planting should be undertaken during the dormant season when the ground is not too cold or full of water. In your region probably February

or March will be good. In drier, hotter parts of the State, much earlier planting is desired. Almost any fruit tree may be attacked by rabbits. Look out also for sunburn.

The Franquette is a variety which has demonstrated its suitability in your region, but several other varieties deserve attention also. It is not likely that you will need irrigation except during the first summer if the soil dries out too much. That you must determine by examination and by the aspect of the trees. Mrs. Vrooman's orchard is Franquette mainly, but the Franquette was introduced to California by several nurserymen, and there is no demonstration, so far as we know, of the superiority of stock from Mrs. Vrooman's trees over the same variety from other sources, if true to name. In a recent reference to the late Mrs. Vrooman's enterprise we stated that she had brought trees from France. Referring again to her writings as published in the *RURAL PRESS*, we find that she made observations in Europe which satisfied her that she should plant the Franquette, but she did not undertake to import trees, for the variety was already being propagated in this State. We understand that she was supplied from the stock imported by John Rock and propagated by him at the California Nursery Company which he established at Niles, Alameda county.

Currant Fruit Worm.

To the Editor: Will you kindly advise me through the *PACIFIC RURAL PRESS* what I can do for my currants. For many years I never had any trouble with them until this last season, when the fruit was full of worms, which made them unfit for use.—A. S., Ukiah.

We have known of injuries to the currant in the Ukiah district for more than twenty years. It was complained of first by N. Wagon seller, a pioneer fruit grower. So far as we know the insect has not yet been identified. Prof. Woodworth tells us that he has had specimens of infected fruit several times, but has not yet succeeded in developing the perfect insect which is necessary for identification. Presumably it is the currant fruit-fly (*epochra canadensis*) or closely allied thereto. If so, it goes to the ground for propagation and thorough winter digging or plowing and early spring and summer cultivation may destroy it. It is possible that the fact that California currant plantations are treated this way for moisture conservation accounts for the fact that the insect has not attracted attention in our chief currant growing regions. This is of course only a guess, but it is all we have at this moment.

Pruning Acacias.

To the Editor: Will you please inform me how to prune the acacia tree being of the *Melanoxylon*, *Molissima*, and *Baileyana* varieties? These trees were planted last spring and are growing spindly, being about 9 feet high. Of course, they should not be pruned to make the terminal buds shoot faster, but should the terminal bud be cut off at 8 feet and the tree be allowed to branch out at that point? The trees are growing along an avenue.—H. M. K., Maricopa.

We should prune very little, but allow the trees along an avenue to take their natural forms. If, however, the roadway is near and vehicles have to go under the trees, you should begin to raise the head by removing very low shoots—not all at once by "trimming up", because that makes a spindly tree. We should not head back, for the trees are naturally dense enough. They will fill out as they get a little more age. If certain branches seem to be getting too much headway, so as to promise destruction of symmetry, such branches may be taken out or shortened as seems best in each case. On the whole, however, there is very little pruning needed on such trees when they have a chance to assume their natural forms.

California's Fruit Trees and Vines.

Figures just compiled at the State Horticultural Commissioner's office from the reports of the County Horticultural Commissioners to the State Commissioner of Horticulture show how great are California interests in horticulture. Indeed, we have long been familiar with this fact, but until now our information has been vague and unsatisfactory as regards the number and distribution of the bearing and non-bearing fruit and nut trees of the State. The grand total shows that there are in the State more than 38,000,000 bearing fruit and nut trees, and more than 13,000,000 non-bearing trees of the same classification, and 125,000,000 bearing grape vines and 23,000,000 non-bearing vines.

Stone Fruits.

Of almost equal importance with the citrus fruits are the stone fruit interests of the State. The accompanying table shows the distribution of the principal stone fruits of California by counties:

County.	Apricots.	Cherries.	Peaches.
	Bearing. Non-bearing.	Bearing. Non-bearing.	Bearing. Non-bearing.
Alameda	296,279	13,650	6,905
Butte	7,182	2,110	1,000
Contra Costa	125,000	10,000	10,000
El Dorado	110,000	15,000	12,000
Fresno	20,000	4,000	50,000
Inyo	306,100	20,000	1,688,900
Kern		20,000	7,000
Kings		20,000	288,584
Lake		20,000	42,000
Los Angeles	195,684	20,087	165,000
Madera	11,000	5,951	7,400
Merced	18,500	9,000	125,000
Monterey	24,780	19,900	5,000
Napa	30,000	1,000	
Nevada			
Orange	96,249	11,978	697,850
Placer	7,520	80	112,618
Riverside	112,114	102,840	83,800
Sacramento	42,000	13,000	135,000
*San Bernardino	149,500	13,800	486,500
San Benito	75,000	60,900	30,000
San Diego			13,960
San Joaquin	71,243	5,748	232,836
Santa Barbara	14,425	427	7,481
Santa Clara	550,600	20,500	610,000
Santa Cruz	56,700	20,000	42,000
Shasta			25,350
Siskiyou			10,500
Solano	142,000	7,000	183,219
Sonoma	39,600	4,721	83,800
Stanislaus	20,500	6,300	126,360
Sutter	4,700	1,800	203,000
Tehama	26,896	3,500	287,870
Ventura	196,461	93,211	
Yolo	121,520	3,135	
Yuba	6,000	5,000	16,000
Total	2,877,593	493,141	8,341,036

*Computed from acreage basis.

County.	Plums.	Prunes.
	Bearing. Non-bearing.	Bearing. Non-bearing.
Alameda	7,815	2,270
Butte		116,220
Colusa		152,381
Contra Costa	5,000	2,000
El Dorado	10,000	25,000
Fresno	9,000	3,000
Humboldt		27,000
Inyo	5,000	4,200
Kern	5,000	45,000
Kings		53,000
Lake		26,000
Los Angeles	52,170	780
Madera		53,100
Mendocino		7,000
Merced		57,860
Napa	25,000	1,700
Nevada		400,000
*Placer	476,840	159,960
Riverside		60,000
Sacramento	100,000	57,000
San Benito		175,000
San Joaquin	26,106	9,433
Santa Clara	273,800	20,000
Santa Cruz		5,320,000
Shasta		70,000
Solano	122,158	30,024
Sonoma	7,410	10,168
Sutter	7,500	1,500
Tehama	8,800	1,000
Yolo	36,837	1,625
Yuba		5,000
Total	1,178,436	317,960

*Includes both plums and prunes.

A study of this table and of general marketing conditions indicates that there is plenty of room for expansion in cherry production. Further development of shipping plums, prunes and apricots ought also to prove profitable in regions adapted for the production of these fruits. Just at present the demand for peaches seems to be well supplied, as this fruit is grown extensively throughout the country.

Citrus Fruits

The orange is plainly king of the California fruits, as there are approximately 13,000,000 trees of this kind planted out in orchard form today, or trees enough, if set 90 to the acre, to make a

grove one mile wide and 225 miles long. The lemon is the citrus fruit next in importance, but it is not in any sense a close rival of the orange, as there are but few more than 3,000,000 lemon trees all told. The distribution of the principal citrus districts of the State is shown in the following table:

County.	Oranges.	Lemons.
	Bearing. Non-bearing.	Bearing. Non-bearing.
Butte	181,580	10,588
Colusa	6,000	7,000
Fresno	115,000	45,000
Kern	10,000	84,000
Los Angeles	2,215,000	216,000
Orange	641,610	287,870
Riverside	1,744,245	190,545
Sacramento	60,000	45,000
*San Bernardino	3,033,200	687,120
San Diego	97,750	3,267
Santa Barbara	512	87
Tehama	17,641	8,000
*Tulare	900,000	2,512,000
Ventura	155,387	49,571
Totals	9,022,538	4,146,051

*Estimate from acreage basis.

**Oranges and lemons together.

A study of the foregoing table shows that certain districts in the Sacramento and San Joaquin valleys are rapidly forging up to the front as

The recent plantings of this nut in Sacramento, Stanislaus, Butte, Yolo and Colusa counties have been unprecedentedly large. This expansion seems warranted by conditions, as the districts in which almonds can be grown are limited in extent and the demand for the product is great.

The production of walnuts is greatest in the southern coast counties, but during the past few years extensive plantings have been made in the interior districts where the promise of success appears good.

Apples and Pears.

The production of apples and pears is of much importance to the State. It is a fact but little known to Californians that until the present year the annual apple crop of California frequently surpassed that of all the other Pacific Coast States combined. A list of the important apple and pear growing counties, with the number of trees in each, follows:

County.	Apples.	Pears.
	Bearing. Non-bearing.	Bearing. Non-bearing.
Alameda	5,060	56,585
Butte	33,979	27,978
Colusa		33,852
Contra Costa	16,000	2,000
El Dorado	5,000	5,000
Fresno	12,000	10,000
Humboldt	108,000	11,000
Inyo	24,200	62,000
Lake	10,000	1,480
Los Angeles	142,000	21,190
Madera	20,000	2,792
Mendocino	166,850	460,000
Merced		4,500
Monterey	326,400	74,615
Napa	100,000	25,000
Nevada	11,000	30,000
Placer	18,640	3,040
Riverside	11,605	114,360
Sacramento	15,500	10,000
*San Bernardino	146,320	192,240
San Benito	15,000	20,000
San Diego	60,534	18,425
San Joaquin	11,071	6,497
Santa Barbara	39,472	9,826
Santa Clara	19,200	30,000
Santa Cruz	626,000	150,000
Shasta	15,000	5,000
Siskiyou	39,850	45,280
Solano	297,200	204,966
Sonoma	10,500	13,400
Sutter	20,940	2,000
Tehama		35,761
Yolo	8,000	500
Yuba		7,000
Totals	2,352,811	1,523,598

*Computed from acreage basis.

The table shows that there are many growing apple orchards in the State. The prospective apple grower should remember that during the past years apples have been extensively planted throughout the United States and that his success depends on his making a wise selection of location, varieties, etc.

Figs.

Of the tree fruits of comparatively minor importance the fig takes first rank perhaps. Fresno leads the list of fig growing counties, with 220,000 bearing and 32,000 non-bearing trees. Los Angeles comes next, with 94,000 bearing and 23,180 non-bearing trees. Each of the following counties has more than 10,000 fig trees within its boundaries: Butte, Merced, San Joaquin and Yolo.

Grapes.

The comparatively small number of non-bearing vines in many sections would indicate that the industry had already expanded to its profitable limit in these districts. This condition is un-

citrus producers. This development is largely due to the facts that water in those districts is abundant and cheap and that the soil and climate are well adapted for citrus fruits. Then, too, the northern grown fruit ripens early and finds a ready market.

Nuts and Olives.

Nuts and olives are also widely grown in California. The subjoined table shows the distribution of these interests:

County.	Almonds.	Olives.	Walnuts.
	Bearing. Non-bearing.	Bearing. Non-bearing.	Bearing. Non-bearing.
Alameda	18,032		7,036
Butte	119,035	184,955	6,000
Colusa	20,000	89,172	1,200
Contra Costa	225,000	12,000	27,000
Fresno		48,000	
Los Angeles	150,600	873	315,100
Madera		347,700	
Mendocino	6,000	5,664	9,043
Merced	25,875		7,300
Napa	40,000	17,500	
Orange		2,000	
Placer	25,890	16,590	
Riverside	81,440	985	
Sacramento	60,000	30,720	
*San Bernardino		75,000	
San Benito	10,000	44,590	
San Diego		2,000	
San Joaquin	147,860	53,585	
Santa Barbara		60,000	
Santa Clara	20,200	20,737	
Shasta		5,000	
Solano	43,339	12,000	
Sonoma	9,230	12,375	
Stanislaus	44,600	6,000	
Sutter	101,900		
Tehama	20,740		
Ventura		2,500	
Yolo	204,192	85,530	
Yuba	8,000	11,278	
Total	1,384,933	678,522	839,990

*Computed from acreage basis.

The growing of almonds is confined chiefly to the thermal belts in the interior counties. The industry is developing most rapidly in the Sacramento valley, which bids fair to become one of the chief almond growing districts of the world.

doubtedly present in many cases, but with improved marketing methods and facilities the day of over-production will be kept in the future. California must long remain famous as the home of the vine.

California is famous as a grape-growing State. All three classes (table, raisin and wine) of vines are well represented. The following table shows where the greater part of the grapes are grown:						
County.	Wine, Bearing.	Non-bearing.	Table, Bearing.	Non-bearing.	Raisin, Bearing.	Non-bearing.
Alameda	5,108,447					
Colusa					290,000	150,000
Contra Costa	2,000,000	600,000	250,000	25,000		
Fresno	10,000,000	250,000	4,500,000	1,500,000	24,500,000	6,000,000
Kings	610,400				5,040,000	5,000
*Los Angeles	5,840,000					
Madera	1,500,000	2,800			1,302,500	71,950
Mendocino	226,485	235,000				
Merced	904,000	235,000	214,000	160,000	238,000	110,000
Napa	10,000,000					
Placer	1,280,000		1,520,000		210,000	
Riverside	1,921,000					
Sacramento	6,000,000	1,200,000				
San Bernardino	7,160,000	800,000				
San Joaquin	10,000,000	1,600,000	9,600,000	2,000,000		
**Santa Clara	1,800,000	1,600,000	192,000	180,000		
Santa Cruz	800,000					
Solano	214,437	7,000	310,163	40,290		
Sonoma	6,530,000	195,200	211,600	10,000		
Stanislaus	500,720				371,800	
Sutter	190,680		19,060		1,260,304	293,284
Tehama	1,880,870					
Yolo	1,286,070		142,405	4,100	985,000	6,100
Totals	76,352,099	14,450,963	16,959,223	3,919,890	34,197,604	6,636,334
1All kinds. 2Wine and table together. 3Computed from acreage basis.						

Agricultural Review of 1912.

[By OUR ASSOCIATE EDITOR.]

On looking over 1912 a person can but say that it started off in very bad shape, that it gave almost record-breaking crops in many things and fair crops as an average, that prices averaged well considering the yield, and that it left things in good condition for 1913.

The fall of 1911 was not unpromising, although Father Time took an awful crack at the citrus men just about the time that everybody is trying to turn over a new leaf, and that parting salutation of 1911 made citrus fruits feel dejected for all of 1912.

The weather the first couple of months for 1912 was perfect, for picnics, not for the man who had to make a living from the soil, but just as everybody could see nothing but disaster, Jupiter Pluvius relented and instead of starvation we had many record crops, with nothing in especially bad shape as far as moisture went. It was just another demonstration of the fact that the California farmer need get scared only after he is hit.

Except for the frosts of 1911 the frost did a minimum of damage to crops. Fruits everywhere bore about all that moisture supplies would permit. Irrigation water was often scant, but sufficient to make good crops; only in rainfall farming were yields of field crops small.

Prices accompanied production in the usual way, that is, in reverse order. Fruit men could not complain of small crops, they could possibly complain of the low prices which good crops brought, but taking everything into consideration, the year was quite satisfactory.

Dairy Progress.—Dairying is probably the foremost agricultural industry today in California, after citrus fruits, and is becoming ever more important with rapid strides. Dairying deserves first place in that it is an industry where a greatly increased production accompanied a substantial increase in return per unit of production. Prices were well in advance of 1911 and butter production but little less than 5,000,000 pounds in advance. Other dairy products increased with nearly equal, and sometimes greater, rapidity with butter, cattle continued to be in substantial excess of supply, great areas were opened up, and best of all improvement in method more than kept pace with increased product.

As with cattle, so with the alfalfa that feeds them. The preceding year was fine for alfalfa prices, and instead of these prices resulting in a surplus production, the production was made equal to the supply only by putting on very steep prices. According to the outlook there is no way to head off the profit from raising alfalfa, either to sell or to feed to cattle.

Other hay was more than scant. It was only about 60% of a crop in 1911 and there were available November 1, 1912, for the San Francisco and contiguous markets only 127,700 tons as against 161,750 tons on that day in 1911. Apparently permanent shortages will be the rule in the future, except in very favorable years.

Beef and Mutton.—Despite the unpromising spring, that threatened to do more damage to the range than anybody else, things went well on the ranges. Feed often was short, on the other hand

the spring rains that came when they were absolutely necessary kept the grass in good enough shape so that cattle and sheep could be kept until decent prices were secured and did not have to be sacrificed for lack of feed.

Nothing now looks safer than the cattle, and from the mutton, if not from the wool standpoint, the sheep business. Eastern meat prices were the highest on record, with Coast prices away up, too, and everyone is face to face with the proposition of too little meat for the population and no chance of improvement. Low prices except for local and temporary causes are absolutely out of the question. Like other meat, pork was high and stands strong for the future.

As with hay, the grains made a small crop, owing to deficient rainfall. The preceding year was short enough, 1912 gave poorer wheat and barley crops, with prices not especially good, either. In fact, prices of farm products all over the country were low this year.

Citrus Fruits.—As we have said, fruit crops were large this year, and prices rather low, that is, deciduous fruits. Citrus prices were also low with the crop smaller than that of last year. There is no question as to the responsibility of that condition. The markets were not to blame, and if only good fruit were shipped there would have been very much less freight to pay, the gross returns would have been larger, the net returns very much better.

Even the northern growers, having a short crop, though from a different reason than south of Tehachapi, also got poor prices, largely from their own fault, shipping too early for the best quality.

Deciduous Fruits.—Deciduous fruits are to be considered in three ways, fresh, canned and dried. There was a big production in each way and prices rather low.

The following table will show production as compared with 1911 for fresh deciduous fruit shipments and for the cured fruit output:

Variety.	Cars shipped fresh.		Tons dried.	
	1911.	1912.	1911.	1912.
Apples	(not included)		3,500	3,500
Apricots	223½	195½	11,000	18,500
Cherries	216¼	244¼		
Figs			5,500	5,000
Grapes	6,370½	6,354½		
Peaches	2,027	1,621¼	14,000	27,000
Pears	2,324¾	3,134½	?	?
Prunes			95,000	97,000
Raisins			65,000	85,000
Plums	1,366	1,775		
Sundry	16¼	15¼	3,750	3,000
Totals	12,554¼	13,340¾	197,750	239,000

This includes only fruit shipped from north of the Tehachapi. The dried fruit figures for 1912 also are largely estimates. As 1911 production led all other years by a wide margin, it can be seen that 1912 was truly a record year.

Some other crops were as follows: Almonds—1911, 3,000 tons, 1912, 9,250 tons; walnuts—1911, 12,500 tons, 1912, 9,250 tons. The production of olives is not known, but it was much below last year.

Prices.—Prices for fresh fruits were quite satisfactory considering everything. Grapes, which last year met a ruinous market toward the latter half of the season, fared better this year, though

the outlook is bad all along—wine and table. The early rains kept down shipments of Tokays, preventing the market from becoming glutted, although it injured the quality and prices of those that were shipped. Still the season was better than might have been expected at the start. Shipping peaches also came out badly, owing largely to big crops in the East. Apples were similarly served and suffered all along. Other fruits paid fairly well.

Wine grapes in the interior were below cost of production and the vineyards are going as a result. The crop was even larger than in 1911. The raisin crop was also met by low prices, as is to be expected with the present method of marketing.

Dried fruit prices were mostly low; peaches being especially poor. Other prices were not bad considering the good yields they accompanied. Prune prices especially look favorable considering the big crop, although not like the combination of big prices and big yields of 1911. Apricots cleaned up about as nicely as anything, owing without doubt to the two co-operative organizations in the south.

As a whole there was less speculation in dried fruit this year than usual, and as a result the fruit moved with less disturbance and the market is left in good shape.

Canning Conditions.—Details of canning production are not yet available, but the output of nearly everything was much larger than usual. From the standpoint of the canner the year was a good one, as the fruit ripened evenly, giving a season unmarked by an excess of fruit at one period and a deficiency at another. The large production was met by an excellent demand from all parts of the world, except in the Middle West, so that stocks are pretty near cleaned up already, or at least in the way to leave a clean market for the 1913 crop.

Asparagus and tomatoes likewise made large packs, which have cleaned up nicely. The asparagus business is picking up owing to the fact that hotels are beginning to reduce prices on asparagus to patrons, which helps greatly to increase consumption.

Prices for most fruits and vegetables for canning were low, but rather more profitable than the large crop seemed to make probable. The best criterion is that planting of everything except drying and shipping peaches is heavy.

Field Crops.—Lack of rain made planting of field crops small and crops scant. This is true of the cereals and most kinds of beans. Limas made a crop second in size only to that of 1911, and with the co-operative marketing the prices naturally were as good as could be secured. Other bean prices were moderate, except for blackeyes, which are not in demand. Potato and onion crops were large and prices very low.

The sugar beet output has been very satisfactory, the factories also making a better schedule to the growers than was in force several years ago.

Economic Progress.—From the standpoint of developments that will have a favorable effect on the future the year has been notable. The dairy-men have gotten together to form a strong State Association and are well along in their work to secure favorable dairy legislation. Last year there was but one cow testing association, now there are at least three in operation and two or three more being formed. Improvement in breeding and methods has been substantial.

The co-operative organizations have flourished and in one or two instances changes in organization have been completed that are for the better.

The California Cured Fruit Association has secured an excellent start, seems to be founded on just, economic principles, is in first-class hands and will be a power for good in future years.

The work of W. R. Nutting and his associates has brought union and co-operation to the raisin growers. The Raisin Exchange is an accomplished fact and the California Associated Raisin Company, a growers' concern, is on its feet, is well along toward the marketing of the 1913 crop and the raisin market instead of weakening, as it usually does at this time of the year, is materially strengthening. In other words, all along the position of the grower in marketing his crops is being made stronger.

And lastly, 1912 has left us in good shape. Over much of the State the fall rains came early enough

to protect the trees from the injury that too long a drouth after a dry spring might do. The precipitation is still well below normal, but other-

wise things are in good condition and a scant precipitation, as was proved this year, does not necessarily mean poor crops.

Nitrogen Greatest Plant Food.

[By Our Associate Editor.]

Plants cannot grow unless all kinds of food are used. To this extent all are equal. Nevertheless nitrogen on several counts can be called our greatest plant food. Nitrogen is used in larger amounts than any of the other elements we call fertilizing elements. It is the most expensive plant food when we buy it. It is in more forms than any other food, it is more interesting, the problems connected with it are greater, or at least more varied, and going from plant to animal it is in much greater demand by mankind and other animals than the other foods we get from plants.

What is Nitrogen.—We come in contact with more nitrogen than anything else. Three-quarters of the air and over are nitrogen. The air presses down on us at the rate of 15 pounds to the square inch, which means that above the average square inch of soil there are 11.5 pounds of nitrogen. Multiply this by 144 and then by 43,560 and you will find how many pounds of nitrogen there are between an acre of land and the stars.

This is pure nitrogen, mixed of course, with the rest of the air, and this nitrogen is about the deadest thing there is. Most other elements are delighted to combine with each other. Nitrogen has to be driven to join with other things by force. Yet when it does join with oxygen, the next greatest part of air, it gives us the strongest acid we know, nitric acid. That acid grabs on to nearly everything it touches. When so combined, say with lime, soda, magnesia, it is in the shape that nearly all our plants absorb it.

Not only does it form the strongest acid when joined with oxygen, but when joined with hydrogen, the lightest gas that is known, it forms one of the strongest bases we know of, ammonia. A base is the exact opposite of an acid, by the way.

Now the next funny thing is that usually nitrogen is in the form of ammonia before it becomes nitric acid. The bacteria get after the ammonia and turn it right about face from being one of the strongest bases to be the strongest acid. This acid always is combined, as we said, with lime, soda, or something like that, and the compound is called a nitrate. Some common nitrates are nitrate of soda or Chili saltpeter, nitrate of potassium, or potash, which is the real saltpeter, nitrate of lime, etc.

Place in Plants.—Nitrogen is the one plant food outside of air and water which does not come to the plants from the mineral world. Sulphur, lime, potash and the others come primarily from mineral materials. Nitrogen in any of its compounds can be considered a mineral substance only on account of being first a part of a plant.

Likewise nitrogen is more of a real plant food than the others. Most of the others, essential as they may be to plant growth, seem to have their main function in stimulating some activity or building up process in the plant. The most apparent function of potash, for instance, is to stimulate the activity of the green part of the leaf in absorbing carbon from the air.

Nitrogen, however, forms part of the plant tissue just as does carbon, the important element in starches, sugars, fats and oils, and wood fiber. Nitrogen is the basic element in protein and the other proteids which are the foods found in meat, the white of the egg, and so on. Thus nitrogen has the distinction of being the basic element of the most important class of animal foods, as well as being prominent in building up plant tissue.

The nitrogen in the plant is found mostly in the seeds and in the leaves and green portions. In alfalfa, the clovers, beans and peas, the so-called legumes which can gather nitrogen direct from the air, it is found in fair amounts in all parts of the plant. That is what makes them such good cattle food. Get a plant that is known to gather nitrogen, and it usually contains lots of protein.

Its Course in Nature.—The other plant foods like lime, potash, phosphorus and so on, follow a fairly simple course in the period between the time that they enter the plant until they return to the soil and prepare again to start life anew.

Nitrogen is very ready to go back alone to the air and in almost every step it takes it is likely to slip away by itself and become lost. In almost every step it takes a great change comes over it and the step is very complicated.

There are three known ways by which it naturally can leave the air and get ready for plant life. One is by lightning. The electric discharges are the club in the first instance that makes nitrogen join with oxygen. After the union a little more oxygen joins in, the material dissolves in the moisture in the air, falls to the earth, combines with lime or some other substance and is at once ready for the plants.

Another way it begins work is to come to the plants direct. This is through the legumes above referred to, alfalfa and so on. These, and all other plants absorb a wonderful lot of air. Three parts in 10,000 of the air is carbon dioxide, and about one-quarter by weight of that is carbon, charcoal being the most common form of approximately pure carbon we know. Yet all of this material in plants comes from the air. We can well believe that a remarkable proportion of nitrogen enters the plant with the carbon dioxide, as 77 per cent of the air is nitrogen and 0.03 per cent is carbon dioxide, yet with nearly all plants, practically speaking, except the legumes, the nitrogen all goes out in the same form in which it went in.

The third way that nitrogen goes direct from the air to the soil is through bacteria in the soil. This is entirely distinct from the bacteria on the legumes and will be considered later.

Ready for Roots.—The nitrogen, excepting with legumes, ordinarily goes into the plants as a food as a nitrate, say nitrate of soda, or potash, or lime, or magnesia. It is then in about its simplest form, the other elements with which it is connected being only one of the above and oxygen. The plants send the lime, etc., off to other business and work the nitrogen up in some very elaborate compound, a proteid, probably, and then it goes to make seed, to help in the leaves, and so on, finally returning direct to the soil in the plant, or being eaten by man or animal.

In the digestive tract only a part, usually the larger part, is absorbed. Some goes out in the feces, which is one reason that barnyard manure is a good fertilizer. Another part is absorbed but runs out through the kidneys. That is why food with lots of nitrogenous matter, like meat, is hard on the kidneys—why a sole alfalfa ration is likely to be wearing on the kidneys of the dairy cow.

Lastly the remainder becomes part of the muscle, nerves, etc., until it is broken down and goes off in growth of skin, hair or in the kidneys again.

Back to the Soil.—Back to the soil however it may go, from the plant direct or from the consumer of the plant in the various methods described above. It goes back in very complicated form and has to be made all over before the plants can use it again.

If kept near the surface, where there is a surplus of air and a deficiency of moisture, the material in which it is may never be humus, it may gradually "burn up" by slow combustion. Nevertheless a portion of the nitrogen therein may become ammonia and finally be used by the plants. Ammonia got its name that way.

Jupiter Ammon.—Most of us have heard of Jupiter Ammon back in Egypt or near there. His shrine was in a desert on a caravan trail and the caravans used to camp there and naturally leave lots of rubbish. This was on the top of the ground, there was no moisture to make it putrify in the usual form and it burned up by slow combustion. As it went off the nitrogen came off with the characteristic odor, which the travelers came to call "Ammonia" after Jupiter Ammon.

Now, we don't want to have vegetable and animal wastes burn up like that, even if some of the nitrogen does work back to ammonia. There is less waste and lots more value all around if we have humus.

Humus forms when there is not too much air

and fair moisture supplies. That makes the change go slowly, more of a putrefaction than a decay, if we use the technical words, and there is less waste to the nitrogen.

Bacterial Action.—The bacteria are responsible for most of the changes. They cause the humification of the organic matter. They live off the protein and other foods there and after they are through with it, the nitrogen finally comes out as ammonia. There are several stages, however, before it gets this far, which need not be spoken of.

Ammonia is a very simple form of nitrogen, there being only one element besides nitrogen in pure ammonia. After it becomes ammonia another class of bacteria take up the work. They change it by removing all of the hydrogen and make nitrous acid, a weak acid, and this quickly changes to nitric acid, where the plants can get it again.

Humus can be made where there is no nitrogenous matter. Usually, however, the more nitrogenous matter in a substance the quicker it will change. The nitrogen also in forming acid becomes such a strong acid that it will dissolve plant foods tied up very tight in the soil, which makes most nitrogen fertilizers very good both for the nitrogen they contain and for the way the nitrogen frees other plant food.

In the above changes spoken of it should be stated that nitrogen can easily be lost if soil conditions are bad. It can change before getting to be ammonia and before changing from ammonia to nitrates.

The greatly differing forms of nitrogen in fertilizers and otherwise, require some words to be said on the place of the different forms of nitrogen in fertilizer, their values and their use. This will be taken up later.

ZANTE CURRANTS IN CALIFORNIA.

To the Editor: I would like to ask Professor Biolette, through the RURAL PRESS, what is the present status of the "Zante Currant" grape as a profitable crop in California. I find that this variety is the only grape which is used largely in Great Britain as a common and almost universal article of food, irrespective of season. It is now being widely advertised from the point of view of its nutritiousness as compared with other foods.

I know that specimen vines of the "Zante" grape are to be found in all viticultural districts in California, but am not aware of its culture commercially. If the yield per vine is too little, is there not some system known by which it could be increased? It would seem that the labor attached to its harvesting and curing would be less than with any other form of raisins.—LEONARD COATES, Morgan Hill.

COMMENTS BY PROFESSOR BIOLETTI.

The questions contained in the letter of Mr. L. Coates regarding the growing of "Zante" currants in California are often sent to the Experiment Station, and answers, so far as I am able to give them, may be of interest to the grape growers among your readers.

The currants of Greece are made from two varieties of small seedless grapes, usually known as the Black and the White Corinth, principally the former. The amount of currants exported from Greece is greater than that of all other raisins from all other countries. Outside of Greece and neighboring countries, no currants are produced on a commercial scale, with the exception of Australia, where small, but increasing quantities are being produced, principally for home consumption.

Both the currant grapes have been tested in a small way in a number of localities in California. The White Corinth is being grown successfully in several vineyards, notably in Placer County. Good crops are obtained when the vines are pruned with long canes in the way recommended by the Agricultural Experiment Station for Sultanina. The production of these currants, however, cannot yet be said to be a commercial success, and the only reason seems to be that they are too good. This is due to the fact that the market and the consumer are used to the small, dark colored Zante currants from Greece made from the Black Corinth. Our Californian currants made from the White Corinth are identical in flavor with the best

imported currants, but they are larger and of lighter color, and perhaps the cook misses the sprinkling of small pebbles which is a characteristic of all genuine Greek currants, owing to the usual method of drying them on the bare soil.

On the other hand, our currants cannot be marketed profitably as Sultanias, owing to their different flavor and to their small size, as compared to the first-class Sultanias. They are marketed therefore with the lower and smaller grades of Thompson's Seedless, or Seedless Sultanias, thus bringing a much smaller price than their intrinsic qualities merit.

So far, no one in California seems to have succeeded in obtaining satisfactory crops from the Black Corinth. The vine grows with extraordinary vigor, but drops most of its blossoms without

setting fruit. In Australia, they had the same experience, but have now adopted a practice, used also in some vineyards in Greece, of girdling the vine every year. By this means, they are obtaining excellent crops. Owing to the unusual vigor of the vine, this girdling can be practised every year, it is said, without seriously injuring the vine.

The small quantities of dried Black Corinth which have been made experimentally in California are of excellent quality and the Agricultural Experiment Station has planted small blocks of this variety both at Davis and at Kearney, with the object of making pruning tests as soon as the vines are large enough to bear.

FREDERIC T. BIOLETTI.

University of California.

Conservation of Wild Life.

To the Editor: The problem of wise conservation of wild life, a problem which has long since been of importance in Eastern States, has only of late become of interest to the citizens of California. Fortunately at the present time considerable interest is being developed, and there is hope of passing some progressive legislation along these lines at the next session of the legislature. Your help in bringing information on the subject to the farmers of the State by publishing the following letter in the PACIFIC RURAL PRESS is earnestly solicited.

W. P. TAYLOR,

Secretary California Associated Societies
for the Conservation of Wild Life.

Wild-Life as a National Resource.

Following interest in the conservation of forests and other national resources has come an interest in the conservation of another national resource—wild life. A number of Eastern States have already backed up their interest with progressive legislation along this line. Many States prohibit the sale of game and several have laws prohibiting the use of automatic and "pump" guns.

Although Eastern States have for some time past necessarily become interested in the conservation of wild life, California, with her apparently inexhaustible supply, has been one of the last to awaken to the fact that the supply of game and other wild life within the State has been greatly reduced, and that some species are nearing extermination.

Increased cultivation and civilization brings little in the way of conservation of wild life, but much in the way of destruction. Dr. Hornaday has well said: "The American people are, beyond doubt, the greatest people on earth in locking their stable after all their horses have been stolen."

Lest, as in the case of the bison and passenger pigeon, legislation come too late, interested conservationists have formed an association of interested societies within the State. This organization, bearing the name of the California Associated Societies for the Conservation of Wild Life, has for its object the unifying of work in behalf of wise conservation. The following societies have affiliated:

Sierra Club, Tamalpais Conservation Club, State Humane Association of California, Cooper Ornithological Club, Paleontological Society of the Pacific Coast, Biological Society of the Pacific Coast, California Academy of Sciences, and California State Audubon Society. The nine societies here listed constitute the charter members of the new organization. The Associated Societies are thus inaugurated with a membership of more than nine thousand persons in different parts of the State, including many persons of considerable influence along legislative lines.

A constitution was adopted and Mr. William F. Bade, Director of the Sierra Club, was elected president, and Mr. W. P. Taylor, of the Cooper Ornithological Club, secretary.

Others prominent in the organization of the new Associated Societies are Mr. John W. Mailliard, California Academy of Sciences; Mr. J. Grinnell, Director California Museum of Vertebrate Zoology; Mr. J. H. Cutter, president of the Tamalpais Conservation Club; Mr. Matthew McCurrie, director of the State Humane Association of California; and Mr. W. Leon Dawson, author of ornithological books.

The need of such an organization will be apparent when it is realized that:

1. Several species of California birds and mammals are now approaching extinction, as the wood duck, land otter, burro deer, and California condor; others are already practically extinct, as the white-tailed kite and southern sea otter; still others are altogether gone, as the Columbian sharp-tailed grouse, trumpeter swan and grizzly bear.

2. Every species of game bird and mammal within the State, with the possible exception of quail in certain localities, is decreasing in numbers.

3. Multiple additions to the numbers and effectiveness of the army of wild life destruction are continually taking place, and as civilization advances, an army of occupation keeps crowding more and more the native species of birds and mammals.

Objects to be subserved by the California Associated Societies are as follows, particular attention being called to the fact that it will constitute an efficient aid to the securing for California in 1915 an Interstate Congress for the Conservation of Wild Life:

(1) It will serve to fix the attention of the members of the constituent societies on the great necessity for immediate action if we are to save what remains of our native fauna.

(2) It will operate so that a solid front may be presented when, during the coming legislative session, measures concerning wild life are introduced. Great possibilities of effectiveness undoubtedly pertain to a non-political organization of this type.

(3) It will be able to give its aid to national problems in the conservation of natural resources, especially wild life.

(4) It will give to each society concerned something of the viewpoint of the other along conservation lines.

(5) It will tend to draw the recognition of legislators of the State to the fact that the welfare of the wild life is of interest and concern, not only to the comparatively small element in the State constituted by the sportsman, but also to the comparatively large element represented by the average citizen, nature student, farmer, and scholar, which element has hitherto had little recognition at the hands of the legislators.

(6) It will constitute an efficient aid to the securing for California in 1915 of an International Congress for the Conservation of Wild Life.

Among the recommendations advocated by the organization are the following:

1. A law prohibiting the sale in California of any American-killed wild game, except jack rabbits.

2. A law providing for the breeding of game in captivity, and the sale of such game under license.

3. A law placing the assistants and game wardens of the Fish and Game Commission on a civil service basis.

4. The shortening of the season on certain game birds, and the placing of certain birds now considered game birds on the protected list.

5. Reduction of the bag limit on certain game birds.

6. Discouragement of county game laws except where a county desires to extend restrictive measures, and encouragement of a strong central-

ized administration of the game laws by the State Fish and Game Commission.

7. A law according two days rest a week to game birds during the open season.

8. A law providing for the protection of certain fur-bearing mammals during all seasons except during the winter when their fur is prime; the season to be determined on the basis of the facts of the case in the different species; provision to be made in the law permitting the killing of such mammals by the owner or tenant of any premises when found doing damage; cases of this necessary killing to be reported to the State Fish and Game Commission.

9. A law providing for the establishment of State game refuges.

Other recommendations: A law granting the Fish and Game Commission power to give increased protection to any species threatened with extinction; a law inaugurating the tag system for keeping track of deer killing; and a law providing for the shortening of the deer season throughout the State.

The California Associated Societies intends to fight for these measures during the next legislative session. Perhaps the most important one is the "No sale of American-killed wild game" law, which would unquestionably be the most efficient measure in favor of game conservation. A tremendous advance in wild life conservation was marked by the passage of a law of this kind in the State of New York, the fight being led by Dr. W. T. Hornaday against a powerful lobby in opposition. California still allows the sale in the market of ducks, geese, and rabbits, all of which species are rapidly decreasing in numbers.

It is hoped the farmers of the State, realizing that wild life is a valuable asset to any State, and that it demands better protection and conservation than it has as yet received, will take an active interest in this conservation movement. The organization will be glad to receive suggestions as to the best ways and means of its object—the conservation of wild life.

W. P. TAYLOR,

Secretary.

University of California, Berkeley.

SHEEP A WINTER SPRAY.

We talk of spraying our trees during the winter to kill insects and fungus troubles of trees. Other ways of overcoming tree pests may be pretty near as good as a winter spray and one of those is a general cleaning up of vineyard or orchard by live stock or plowing.

The good of turning sheep into a vineyard to prevent serious injury from the vine hopper was related at the Fruit Growers' Convention. The main idea was to give the sheep some inexpensive feed, but the result invariably was that they ate up all the food that the hopper wanted and the latter had to starve or move away, freeing the vines from his attack the following season.

Similarly a growth of weeds or grass along the fences or irrigation was invariably reported to be a shelter for the hopper. Live stock are certainly a fine thing to have around a place and if they can consume a lot of waste growth that helps to hide pests of trees or vine they are an added benefit.

LIME SULPHUR FOR GUM DISEASE.

Horticultural Commissioner Joseph Wetzel of Siskiyou informs us that he has had great success with the lime sulphur solution as a cure for the gumming of cherry trees. He tried this last winter. Several trees which were suffering from the gum disease were treated by having the dirt taken away for several feet around their crowns and a heavy application of lime sulphur solution applied. The dirt was then replaced. The trees bore the heaviest crops in their history and came through the season in first-class condition, showing no sign of the trouble. Since cherry trees in many places are going backward the work might profitably be done on them on trial at least.

Gypsum on gumming citrus trees has been used in the same way with equal success and perhaps several such materials might well be tried on sick trees of different varieties.

A Pioneer Dairy Ranch.

[By Our Associate Editor.]

There are many reasons for telling of the A. L. Sayre dairy ranch near Madera. It is worth a story for its present condition and it is worth one for being a pioneer ranch, for demonstrating the history of the change of the great interior valley from the old days, almost in the beginnings of agriculture, to the era of irrigation and intensive dairying that is rushing upon us now.

This ranch of 800 acres is located two miles south of Madera, the most undeveloped county of the San Joaquin valley, the one where the greatest transformation is going on. Nearly all of the county agriculturally is but little different from what it was in the old days, the extensive

gating machinery was not available then and the engine from a threshing outfit was used for the power. This burned straw and wood. The pumping was done by an 8-inch centrifugal. Later a 60-horse-power Fairbanks-Morse gas engine was purchased and used until four seasons ago. The whole ranch is irrigated from this outfit from three wells connected into a series.

A 10-inch pump is now used with a 50-horse-power motor. It gives 3500 gallons per minute, against a 38-foot head. The wells themselves are 110 feet deep. The ditch water is not used at all.

Dairy Beginnings.—These irrigation experiences are typical of the pioneering work in intensive

hay. This system is not followed as the best method, but largely because labor is too hard to get to do any other way, and it has its advantages. If it could be done all right, Mr. Sayre would cut and feed green.

The value of the alfalfa is proved in the quality of the cows, which on the female side have had alfalfa and little else to eat for nearly 20 years and are in first-class vigor and producing condition. The constitutional excellence of the foundation stock, combined with the open-air, pasture life of the cows, makes them practically tuberculosis proof. The herd is not tuberculin tested, except two strings which supply market milk for Madera and such other cows and heifers as are sold, but out of 84 tested not one reacted during the year.

One reason is that they are pastured, not kept in dusty corrals, as dust is provocative of tuberculosis. Another reason is that no females, cattle or swine, are purchased. The only animals bought



Sayre Dairy Herd in Madera County, Near Fairmead Colony.



Sierra Creamery, Near Madera.

wasteful agriculture is everywhere apparent now, and the Sayre ranch stands out with but few comparisons now as a modern dairy ranch, and blazed the way for modern methods in all that section of the country.

History.—The owner, A. L. Sayre, came first to Madera when a boy in the early 70's, but soon went back East, to return and begin the cattle business on his present ranch in 1887. The country in its natural condition was, and is, most unpromising in appearance, being treeless, windswept and with a scant rainfall.

The suggestion of better things was in an irrigation ditch that supplied the ranch with water in spring, but for such a short time that the ranching under it could hardly be called irrigated farming. The water could be used for some things, but hardly for alfalfa, as about the time that the alfalfa got growing nicely the water would play out for the season. It gave just enough hint of good things to come to make the owner of the ranch decide to get water all the year 'round and this led to what is one of the first of the modern pumping plants from bored wells.

Irrigation by Pumping.—Although the country is so unpromising above, it is underlaid by gravel with abundance of water and Mr. Sayre decided to bore wells and put in pumps that would provide water for the land instead of merely for stock or household purposes.

This pump was installed in 1894. Modern irri-

agriculture. The experiences in dairying are generally typical of the change from the old to the new.

The ranch was started as a cattle ranch, Durhams being the breed kept. Dairying was out of the question under the old regime, but when the new regime of irrigation came the dairy cow came with it.

The first cows were simply selected range cows, Durhams, the best of the herd selected. This was the foundation stock for the whole herd now kept. The Durham blood, with the potential dairy qualities and the rugged constitution was the basis for an excellent herd.

For the first few years choice Jersey bulls were kept, but later these were replaced by Holstein bulls. Although for many years now only Holsteins were kept, and the herd in appearance is a Holstein herd, the Jersey blood has left its mark in the richness of the milk. The writer looked over the test sheet of two strings, for example, and found quite a few animals testing 5% fat or better, while the average was over 4%. The Durham is seen in the presence of several blue and white cows, one of the latter being the best producer on the place, giving more than two pounds of fat per day.

Dairy Methods.—The dairy is conducted like a typical California dairy on irrigated land. That is, alfalfa is the main, almost the sole diet, and the alfalfa is pastured, not cut and fed, or fed as

are bulls and boars, and these are always pure bred.

Alfalfa alone does not seem to shorten the cows' lives. One was sold a little while ago over 20 years of age and had been worth keeping until sold.

Sorghum and Silage.—Still, a change is good and sorghum is raised as a change for cattle and land. It is planted whenever it is necessary to plow up alfalfa, and about 35 acres are put in every year, out of the 575 acres more or less that are used for alfalfa. The other 225 acres are in Muscat grapes. Oats are put in after the alfalfa is plowed up and the sorghum goes in after the oats are taken off. Thus two crops are taken off the land while it is resting up from alfalfa.

The sorghum is siloed and fed green. Indian corn has not been successful, and the sorghum, on the other hand grows well and has never given any trouble in the silo.

The only other food outside of alfalfa that the cattle get, is winter pasture. The alfalfa is irrigated in the fall to bring up the alfalfa, foxtail and other native forage crops that would come up. This irrigation is necessary owing to the scant winter rains usual in the central and southern San Joaquin. When this natural pasture is gone, the cattle are usually fed some milled or concentrated feed.

The alfalfa is not overpastured. Once every winter it is given a thorough going over with the

alfalfa renovator, the spike-toothed disc cultivator, and this is also done after one or more of the summer cuttings. This winter cultivating helps to keep down the foxtail.

The soil is a light to medium loam. In its natural state it looks like a sand bound well together with some cementing material. This treatment has kept the alfalfa in good condition, and with light pasturing some stands are nearly two decades old and in good condition.

Incidental Features.—The owner of every large dairy knows the difficulty of keeping a record of every cow. Ear tags are hard to keep track of and tear out. Mr. Sayre has every cow branded with a definite number on the right hip. Then there is no mistaking her and the number is always perfectly plain when a Babcock test is going to be made. A record is naturally kept of the way every cow is producing.

As in every dairy where the alfalfa is pastured, bloat is the worst trouble encountered with the cows. This year three went under, last year all were saved. The trocar is used only as a last resort and has been thoroughly satisfactory, relieving the cows and the wound healing up nicely with no special delay, except in rather exceptional

instances. Usually a strong dose of soda and water, the gag in the mouth and the putting of the cow's feet on a box or something else makes the trocar unnecessary.

As we have before intimated, cows from this dairy supply Madera with milk, and these are kept by themselves. The rest are kept for butter, which is made on the place. Mr. Sayre not only had the first dairy in that part of the country, but he had to be his own buyer for the cream. He also purchases some cream from the few other dairymen in that part of the country. Having the production of the milk in his charge and being able to insist on a good quality of cream from his patrons, the butter always scores "extra."

We give views of the Sayre ranch and cattle herewith. They illustrate the difference between the dry and barren land and that land after the richness of the soil had been unlocked by the moisture that lay in the gravel beneath that soil. It is a development that is progressing all over the irrigated valleys of California. The Sayre ranch is notable for its pioneer work in this particular, in the success that has been attained, in the results that it has proved that alfalfa and irrigation will bring to cattle after two decades of such life.

More About the Other Half of the Herd.

To the Editor: The articles you are publishing through the columns of the PACIFIC RURAL PRESS written by W. M. Carruthers along stock lines, are being followed very closely by me. The one referring to "The other half of the herd" is particularly interesting and a few more articles written along the same line would be a benefit to our stock conditions in general.—Geo. G. Murdock, Upper Lake County.

COMMENTS BY MR. CARRUTHERS.

In answer to this, an article along the line, "The other half of the herd's battle," may be in place at this time. A great deal has been published in the columns of the live-stock journals and many lecturers have, and are being delivered by our professors at our State Agricultural Colleges pertaining to the buying of pure bred sires. A good deal has been written regarding the female end of the herd but the great battle that is being waged every day by the breeder, is the care and development of the young animals from these sires and dams. When a calf or colt is born, just half of the battle is over, and like an army on the battlefield, the battle is lost if what has already been gained can not be held. Stock properly fed will be fully developed and the show individual, well developed, is par excellence. One of the great duties which is often lost sight of, is, to assist nature in every possible way and not to work against her. When an animal does not receive more than enough food each day to simply replace the strength which is expended in living and exercise, he becomes "stunted," which means, he is too small and not representative of his breed. Good feeding does not necessarily mean a heavy allowance of fat-producing food. Breeding stock requires plenty of food which builds up muscle and bone and tends to growth, not fat. Careful methods of breeding give us the proper materials to work on and good feeding enables us to assist nature in developing it fully. If live-stock of any kind lacks in breeding, the same amount of feed will not give as large returns as it otherwise would. On the other hand it does not matter how well bred a steer or a hog may be, if he is not properly fed he will never be a strictly first-class animal. The breeder of live-stock must have a thorough knowledge of the best blood of the breed he is caring for and know how to feed to attain the greatest development. The herd that is well and properly fed usually has few ailments, so the breeder who is a practical feeder will gain a great deal by not having many doctor bills to pay. From the standpoint of the range, one of the great secrets of success, along feeding lines, is to always have on hand a little more feed than stock. This has been demonstrated again and again for the man who loads his range to the limit with stock will some day be caught and when that time comes he will be hit hard.

Many cases of this kind occurred in our own State last year, but these experiences seem to be early forgotten because if one will travel the length and breadth of this State, right now, many cases will be found where the ranges have been overstocked. Any clear-minded, thoughtful, range man who always provides for a rainy day, may not every year make as much as the other fellow, but one year with another he will be laying up money, while the other is borrowing money. In the pure bred business, the secret of feeding is found, in not what you feed but what you don't feed. The great show steers at the International are not developed by what they are fed, but by what they are not fed. Holland has demonstrated to the world what the other half of the battle can do with the other half of the herd, if handled in a judicious manner. It was in this country that the dams were produced and developed on the great succulent grasses on their lowlands (very similar to our lowlands along the Sacramento River) which dropped in this country the two great Holstein bulls "Henderveld De Kol" and "Pontiae Korndyke" which have performed such great work in the developing of this breed in this country and Canada. But this little country has done more than this, in the developing of the Belgium mare. Thirty years ago Belgium mares were very inferior among the draft breeds of the world, and those of them really good, were generally sold to foreign lands. The Government of Holland seeing the future of this great draft horse in peril, started action to retain the best mares of the breed in their own country and withheld them from foreign buyers. One to realize the wonderful work which has been accomplished along this line in the last twenty years, ought to have seen the class of mares they started on to build up to what they now have. These mares were small, crooked-legged, boog-hocked with great thick necks and uncouth heads. The method applied to rebuild this great draft breed was the one used which our correspondent suggests. The very best stallions were retained by the Government and loaned to the breeders in that country to build up their studs. To show that this has been a success one has only to visit the great horse shows at Kansas City and Chicago.

The great massive Belgians which are seen at all National horse shows are monuments to the foresight of the Government of Holland in retaining the best mares at home and providing stallions for community breeding.

HINTS TO PURE BRED SHEEP BREEDERS.

[Written for the PACIFIC RURAL PRESS by
W. M. CARRUTHERS.]

In much less than a month the early lambing season will be on in California. A word to the

beginner in the pure bred sheep business and to those who have not had very much experience in the work, might be of some help just at this, the right time. Should any ewe die abort or strain after lambing she should at once be removed to a safe distance and the woodwork and pen it occupied must be thoroughly disinfected, and all the litter, etc., burned. It is also wise to have in the lambing fold a tub of live lime with an empty tub and shovel alongside. All cleansings, etc., should at once be placed in the tub and a shovelful of fresh lime thrown over it. By this simple process the lambing fold is quite free from unpleasant smells and the possibility of contagion from unhealthy matter is greatly minimized. These may appear, to some, unnecessary measures to adopt but those who have noted the disastrous results brought about by carelessness will readily see the desirability of carrying out these suggestions. Much of the so-called bad or good luck is usually traceable to the treatment the ewes have received during the pregnant period and a high rate of mortality amongst ewes and lambs is often the result of their being kept on cold, wet or barren soil. A barrel with a hinged lid with some nice dry hay in it is a capital place to put a sick or weakly lamb in and is really much more effective than placing it near a fire. For a very weak lamb, a large flat India rubber bag filled with hot water is far preferable to fire warmth and has been very successful in saving life. It is very important to get the ewes with their lambs out of the sheds as soon as possible except in cases where the lambs may be too weak. Sunshine and fresh air are just as essential to growth as is food. Of course the ewes must be fed so they will give large quantities of milk. If any one who is a close observer will notice the conditions of young lambs in flocks where different methods of feeding are practiced you can readily see what proper feeding to the ewe will do for the lamb. There is a marked difference when one flock has been fed barley and timothy hay and the other fed oats and bran with alfalfa or clover hay. The lambs from the former will be weak simply because they have never received sufficient nourishment from the dams. These ewes were unable to give to their lamb because their own feed did not give such nourishment to their bodies. Carbohydrates do not build bone and flesh as they are fat producers. Oats and bran together with alfalfa stimulate the milk flow and indirectly produce large vigorous lambs. The gain from properly fed ewes at this time is so great that all breeders should give the subject their careful consideration. Where the breeder has prepared a pasture with green feed for the use of lambing he is most fortunate because such a patch is very valuable for the ewes and lambs in addition to the dry feed. This food combination can hardly be improved on. The youngsters like a bit of green feed and soon will be eating quite a little. If there is no green pasture in sight it would be well to substitute something to take its part until grass does grow. This green feed assists both ewes and lambs in thriving better than if they were confined to even the very best of dry feed. It is, therefore, good policy to get them all outside as soon as they are strong enough and the weather will permit. A good way to keep the lambs growing right along is to give them a small amount of grain by themselves each morning and evening. For this a "creep" can be made easily and cheap. If the flock is being shedded each night a corner of the shed can be used for this. A simple "creep" can be made by taking two 1x6 inch boards and placing them far enough apart to make a partition which ewes will not jump over; then nail slats on far enough apart so the lambs can go through but the ewes cannot. Put a little trough in there—the lambs will soon know what it is meant for. Feed to make them grow, not to fatten them. When the lambs are real young it would be well to crush the oats in the ration. If lambs get this grain, a liberal amount of milk from their mothers, some grass and a little alfalfa hay, one may rest assured that they will get the very best returns from their flock. Lambs which have been well fed in every way always mature to be much larger, stronger and with heavier fleeces than the others.

Drainage and Alkali Reclamation.

[By FRANK ADAMS, Irrigation Investigations, U. S. Department of Agriculture, at the Fresno Fruit Growers' Convention.]

During the past 15 or 20 years the owners of Western irrigated lands and the communities dependent on them for prosperity have quite generally come to realize that drainage is almost as fundamental, even if not fully so, as irrigation. Many hundreds of thousands of acres of once highly productive lands have acre by acre been rendered wholly or partially non-productive through an excess of ground water in the feeding zones of plants and the consequent concentration at or near the surface of excessive quantities of alkali.

While this condition obtains in every Western State, it is usually localized in those sections of each state where considerable quantities of water have been or are now being used, where the irrigated lands are relatively flat and distant from ample natural drainage channels, or where lands are so situated with reference to canals as to receive lateral seepage from them, as, for instance, when they lie at the base of relatively steep slopes across which canals are run.

If the excess of water that causes injury to a farm were merely that which the farmer himself applies in irrigation to his own farm over and above the immediate needs of his crops, little general injury would be likely to occur, because few farmers would continue long to add water to land already excessively moist. But it is usually the water that seeps from

canals or from higher irrigated lands, and the coming of which the individual can not prevent, that does the damage.

DRAINAGE METHODS.—It would not be worth while for this convention to listen to a detailed description of the various methods that have been developed in this country for draining irrigated lands, even if the writer were a specialist on that subject. Those interested can obtain far more information than I can give by reading the various drainage publications issued by the Irrigation and Drainage Investigations of the United States Department of Agriculture, all of which can be obtained free on application to the Secretary of Agriculture at Washington. A few general observations as to methods may, however, be in place here, especially as they may aid in making clear the results of specific drainage experiments conducted by the Irrigation and Drainage Investigations and the State Engineering Department of California near Fresno, to be taken up later in this paper.

Since the condition that makes drainage necessary is not due to the water applied directly in irrigation, but rather to the water that seeps from canals or higher over-irrigated ground, the fundamental process in drainage is to intercept the excess water in its lateral percolation along some hard or relatively impervious substratum or in its rise in the form of ground water. Consequently the location and depth of drains is of prime importance. If it is feasible to intercept lateral seepage water before it reaches a point of injury, it is obvious that before locating drains the sub-surface conditions must be looked into with great care. This simple fact is mentioned here because according to those who have been conducting drainage investigations it is very frequently overlooked. On the other hand, if the injury comes directly from below, by the rise of ground water, it is plain that drains must be large enough and deep enough and, if of tile, so carefully laid as to both alignment and grade, that they will not clog but will hold the ground water low enough to give ample feeding room for plant roots and generally to prevent the rise of water by capillarity and the consequent accumulation of alkali on the surface. In damaged irrigated fields experience has shown that 6 feet is about a minimum depth for tile drains.

Where the adverse conditions of excessive moisture has obtained sufficiently long to result in an excess of alkali, it is evident that in addition to drainage, assuming the natural precipitation is not sufficiently heavy to accomplish reclamation within a reasonable time, surface flooding is necessary to wash out the excessive salts. Sometimes both drains to intercept lateral percolation and drains to lower the ground water coming up from below are necessary in the same field. Again, where it is not practicable to place drains deep enough to collect water pressing up from below, drainage engineers consider it feasible to excavate pits 4 feet or more deep at intervals directly beneath the drains which when filled with gravel, readily carry the water up to the level of the drains. Occasionally when water seeps laterally through gravel before reaching and causing injury to a field, collecting or "relief" walls in the gravel are sunk and connected to the drainage system. Where drainage waters can not readily be discharged by gravity it has been found feasible to collect them into sumps from which they can be pumped into irrigation canals or other surface channels lying above the level at which it is desired to maintain the ground water.

DRAINAGE EXPERIMENTS IN OTHER STATES—Since about 1901 the Irrigation and



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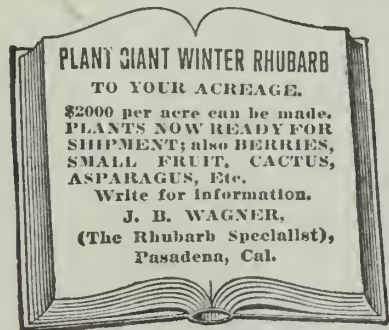
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Drainage Investigations of the Department of Agriculture have been conducting drainage experiments in the Western States, until recently mostly under the immediate direction of Mr. C. G. Elliott, who for some years was Chief of Drainage Investigations. Experiments conducted near Fresno under the direction of Dr. Samuel Fortier, Chief of Irrigation Investigations, will form a later subject in this paper, but before taking them up it may be of interest to cite some of the results obtained elsewhere. Only brief mention will be made of such results as are cited because the experiments are described in detail in Farmers' Bulletin No. 371 and in a reprint from the annual report of the Office of Experiment Stations for 1910, entitled, "Development of Methods of Draining Irrigated Lands."

Eleven separate drainage experiments were carried on in Utah from 1904 to 1908, with some of them still in progress. A few of these only will be mentioned.

HYDE PARK EXPERIMENTS.—The covered 2 separate holdings totaling about 31.5 acres in an affected belt of 2000 acres, between Hyde Park and Logan, on which satisfactory yields had been obtained for 20 years prior to damage by seepage. The soil was black loam underlaid with yellow clay, both of an open nature. First cereals and root crops gave way on account of seepage to hay grasses, the latter in turn being replaced by water grasses. Lines of 8-inch and 6-inch were laid 4 to 4.7 feet deep along the upper edge of the experimental tract to intercept the seepage from the higher lands adjoining, and a line of 5-inch tile was placed 4 feet deep lower down to care for the seepage that passes the upper line. Since drainage yields of 50 bushels of wheat, 100 bushels of oats, and 18 tons of sugar beets per acre have been taken from the reclaimed land. The average cost per acre for drainage was \$15.60.

GARLAND EXPERIMENT.—The area treated here was 50 acres, the soil being clay loam

underlain by separate strata of sand and clay and pockets of sand, and the tract itself being part of a flat depression separated from Bear River Canal by a stretch of sandy lands. The source of excess water was seepage from irrigation and the canal. Trouble began with a season of sub-irrigation when the crops were record breakers. Then several acres became drowned out. Eleven farmers joined the Department of Agriculture in the drainage experiment. Both intercepting and outlet drains were used. Five-inch and 6-inch tile placed 4 feet deep led to 8-inch and 10-inch main outlets. The resulting improvement in this tract after drainage was very marked, not a trace of alkali showing. The average cost per acre was \$16.87. Since this experiment was concluded a drain-tile factory has been built by neighboring farmers, because the tile the experiment proved were necessary could not be obtained within a convenient shipping distance. In addition hand labor has been displaced in some cases by steam trenching machines suitable to the soil present and which excavate the trench to the full required depth at one passage.

RICHFIELD EXPERIMENT.—This covered 80 acres in central Utah, the tract having a gentle slope of about 1 foot in 200. The source of seepage water was lateral percolation through a sand sub-stratum from higher lands. The parallel lines of 5-inch and 6-inch tile were laid 600 feet apart across the slope, with a few laterals of 4-inch tile to tap particular spots. The average depth was 5 feet. An open-trench outlet, first proposed to reduce cost, was replaced by a 10-inch pipe drain. Only the very highest portion of the 80-acre field was producing crops when the experiment was undertaken, the balance being covered with salt grass. After the work was completed a great deal of water was discharged, apparently from every part of the system, damp spots becoming dry and the spread of alkali stopped. The writer has not at hand the results of this experiment to date, but conditions were reported so gratifying that other projects were undertaken in the same locality, including the formation of a drainage district of 1000 acres. One of the farmers in the tract subjected his land to a thorough leaching process and was confident of general success. The acre-cost in this experiment was \$14.02.

EXPERIMENTS NEAR FRESNO.—It is not necessary to multiply instances from other States of successful experiments in draining irrigated land injuriously affected by the rise of ground water and alkali accumulations. This is especially the case since, already mentioned, experiments have been conducted in the near vicinity of Fresno. The first work done here was on the Taft and Hansen farms at Fig and Central avenues, 3 miles south of the city, and was under the Bureau of Soils of the Department of Agriculture. The plan was to drain into a sump and then lift the drainage water into Central Canal by means of a 3-inch centrifugal pump operated by a water wheel in the canal. The first tile installation was partially unsatisfactory but it was replaced by a larger one. The pump was operated for several years whenever there was water in Central Canal to turn the water wheel. This was not sufficiently steady, however, to hold the ground water at a sufficiently low level, because during the season of high ground water here a few hours only are required after stopping a drainage pump to have the ground water reach its former level. In 1908, owing to the unsatisfactory power supplied by the current wheel in the canal, a portion of this tract was connected with a new drainage system on the west and north which was installed in that year on the farms of J. and Fred W. Hansen. This new system will be considered later.

(To be continued.)



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The following vegetable and flower are real novelties. Beautifully illustrated in the Garden Guide.

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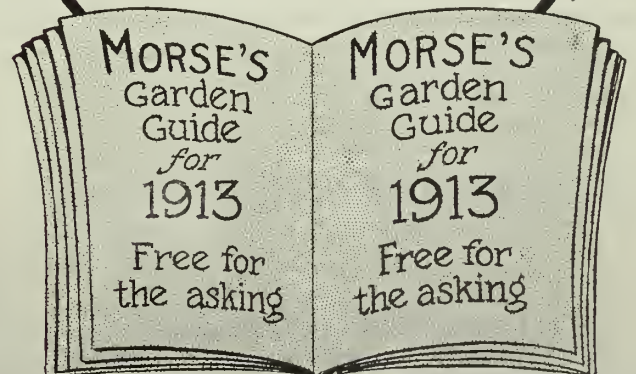
An early scarlet fruited tomato which has proved a success all over the country. Smooth, very even in size and very solid. One of the best house garden, canning and shipping tomatoes in existence. 10¢ per packet.

Giant Childsii Gladioli

This class of gladioli is very tall and erect with spikes of bloom over two feet long. The flowers are of gigantic size and with a great variety of colors. 3 for \$1.55.

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NOW IS THE TIME TO SOW

Payne's Royal Exhibition Pansy Seed, the best strain on the Pacific Coast. Giant Perfection Stocks and Payne's Christmas Flowering Sweet Peas, all described in the above mentioned Catalogue.

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Write for prices on all varieties of Nursery Stock.

Dollar Strawberry Plants, \$5.00 per M.
Burbank's Patagonia Strawberry Plants, \$2.00 per 100.

UNITED FRUIT COMPANY,
Newcastle, Cal.

EUCALYPTUS

We have our usual stock of high-grade trees, to which we invite correspondence of intending planters.

W. A. T. STRATTON

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LOUIS F. SCRIBNER

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Free Illustrated Price List.

Salesman Wanted

To sell trees for the oldest Nursery on the coast. Pioneers of 1849. Since 1863 at the present location. Three generations growing trees. 420 acres. Commission paid weekly.

THE WOODBURN NURSERIES, Woodburn, Oregon.
F. W. SETTLEMIER, Proprietor.

Progress in Raisin Co-operation.

(By OUR ASSOCIATE EDITOR.)

Not long ago in these columns we told of the progress that had been made in raisin co-operation in the formation of a "Million Dollar Corporation" and the California Raisin Exchange. Since that time more progress has been made; the stockholders have elected the trustees who for seven years will have the voting power of the stock, the trustees have elected directors, the manager and other officers have been chosen and started work, contracts have been sent out, the method of operation by the company has been partly decided upon and the company is on its feet.

Only in one way is the organization incomplete and that is in the total amount subscribed. The capital is to be \$1,000,000, \$750,000 of which is necessary before subscriptions can be called in. The total amount could have been secured ere this if it were not that the stock is being held open for the growers, the ones for whom the company was organized to help rather than issued to moneyed men who would look upon it only as an investment. Owing to the work in electing officers and getting things started, little has been done recently to call for subscriptions, but now that the organization is complete and work in getting contracts started, the work of getting more stock taken up has begun again also. About \$460,000 had been subscribed by date of writing and possibly before this is printed, the \$750,000 or over will be taken up.

ORGANIZATION.—The California Associated Raisin Company, the "Million Dollar Corporation," is solely a stock company. The corporation will do business like any other stock company, having the great advantage over the raisin organizations that preceded it in that it has the cash to back its business, while the others were purely voluntary concerns to all intents and purposes and were tied down badly when it came to actually getting hold of the goods and in many other ways.

The stock is expected to pay dividends and with the backing it has, the dividends ought to pay a reasonable profit. It is thought so good of that capitalists are wanting to invest, although they will not be permitted to do so until all growers have been given a chance to subscribe. Their desire to subscribe guarantees that the funds of the company will be sufficient to complete the incorporation as soon as is necessary and the presence of a few large stockholders by some is thought to be more of an advantage than anything else. Still to insure that growers' interests will always be paramount the growers' money is all that is being taken now.

OFFICERS.—The directors of the company are: H. H. Welch, president; James Madison, vice-president; W. R. Nutting, secretary; H. Graff, treasurer; and A. G. Wishon, Hector Burness and Wylie M. Giffen. The manager is James Madison of San Francisco, named above, formerly a raisin packer and now having extensive business interests in the salmon canning business, as well as in the raisin industry.

There are also 25 trustees who for a term of seven years will have the voting power of all the stock. These were chosen by the stockholders and are all raisin growers or connected with the industry, so as to have the interests of the growers at heart. All, with the exception of Mr. Madison, live in the raisin district. At the close of the seven years, the trust expires and the stockholders may reorganize the company as they see fit.

CONTRACTS AND PLANS.—The main object of the company will be to see that

good prices are secured for the raisins all over. In so doing the stock should earn dividends. To see that good prices are secured contracts are being written up for all the raisins that can be secured and have been sent to every raisin grower in the State whose name and address is known, stockholder or not.

Provided contracts are secured on 60% of the acreage of Muscats, Sultanas and Thompsons, the price to be paid will be 3 cents for Muscats, 2½ for Sultanas and 3¼ for Thompsons. If 75% can be secured, the prices will be 3¼, 3 and 3½ cents. If 85% of the acreage can be secured, the prices will advance to 3½, 3¼ and 3¾ respectively. Malagas will also be taken at 2¼, 2½ and 2¾ cents, depending on the acreage signed up. The contracts run for three years at the above prices, and may be renewed for two years.

HIGHER PRICES.—One reason a grower might have for not contracting his raisins is that still higher prices than those above stated might be secured. The reason is provided against in the contract by the agreement that if a higher price is obtained for the raisins than was paid for them, this higher price, less one-fourth of a cent, will be returned to the grower. The one-fourth is necessary to meet expenses of handling, office expenses, interest on investment, etc., and is by no means velvet to the company. They would have to get a big part of it to pay their expenses for the use of the capital. In this quarter cent there will be sufficient for a wide advertising campaign through which the consumption of raisins can, if necessary, be greatly increased.

ADVERTISING EFFECTIVE.—We say, "if necessary," for the consumption of the country now equals or exceeds production, in spite of prices that are away below the cost of production and trade killing marketing practices, but prices may go up so as to partly retard buying when a bumper crop comes along. To increase consumption of raisins under these conditions by advertising is easy for the following reasons.

1. They are in every grocery store in the country. It costs a great deal to get most goods to the dealer, but raisins are already there, and this expense, which is largely advertising, is saved. 2. Everybody knows what raisins are, when they see an advertisement, although they will not know what a manufactured food product is without being told. 3. They know how raisins taste and like them, which they do not know with a patent food product. Thus all things combine to make advertising raisins inexpensive and effective.

How SOLD.—Now, just how they are sold has not been fully decided yet and will not be until it is seen how the cat jumps. There are two ways that are very probable. One is simply to resell them to the packers to dispose of as they can. This is the simplest and easiest way to do. It gives the packers no reason nor opportunity to do harm, for it lets them sell all the raisins they ever sold, and prevents them from buying at ridiculously low prices or from trying to beat down prices. In other words, it prevents them from speculating and upsetting the market, which is the basic fault of the present system. It also will save the packers big expenses in buying, and by preventing instability of prices will enable them to handle the goods cheaper and on a smaller margin.

Provided the packers will not come through and buy the raisins, the company will simply hire the packing done under a few brands and sell the goods through their own brokers. Naturally with the big proportion of the crop in their hands there will be sufficient packers anxious to

Do not trust to Providence

Feed your plant life as you would
your live-stock

PURE ANIMAL MATTER
AMMONIATES

Gold Bear



Fertilizers

FOR CALIFORNIA SOILS

Containing animal matter originally produced from elements in the soil are the best and most rational foods for all crops.

Write us for literature and prices.

WESTERN MEAT CO.

SAN FRANCISCO, U. S. A.



LARGEST CITRUS NURSERIES IN THE WORLD

Parties contemplating the planting of citrus groves next spring will do well to send for our prices soon, as there will evidently be a shortage of strictly first class stock. Write today for particulars, or, better still, pay us a visit so that we may be able to show you just what we have.

Our finely illustrated booklet, "Citrus Fruits," covering the industry from the seed to the market, mailed to any address on receipt of 25c in stamps.

SAN DIMAS CITRUS NURSERIES
SAM DIMAS, CALIFORNIA



Willson's Wonder

THE GREATEST WALNUT IN EXISTENCE.

THE EARLIEST HEAVY BEARER.

Large, Blight-Resistant, and Finest Quality.
Stock of trees limited. Write for prices.

ALSO GENUINE FRANQUETTE WALNUTS.
All stock grafted on California Black.

Encinal Nurseries

F. C. WILLSON, Prop.

SUNNYVALE, Santa Clara Co., Cal.

Telephone 17-J.

CITRUS TREES

ABSOLUTELY FIRST CLASS.

If you want reliable trees, buy of reliable dealers. Now booking orders for 1913.

POLLARD BROS., South Pasadena, Cal.

do this rather than have their houses lie idle.

It should be perfectly understood that with the basis of organization and the capital, the company can pursue any system that it sees fit to meet conditions. If some other way of marketing had better be used than the above, the directors will use it.

EXCHANGE DUTIES.—The Raisin Exchange, of which we have heretofore written, has a separate work from the company, and is a distinct and independent concern. It will operate as has before been described, and will not conflict with the company. Contrary to what was expected at the time our last description of progress was published, the company is to buy mostly through contracts, not on the public exchange, yet the Exchange is to be a great help.

Provided the capital is subscribed soon and the directors care to start operations on this year's crop, the Exchange can be used as a lever to run prices up from their present low level. For instance, the company can announce that they will buy through the Exchange all raisins offered for 2½ cents up to a certain time, that they will then pay 2¼ cents and so on. This will force the packers to pay that amount, and as the jobbers in every product hurry to buy when the price is going up it would move the raisins quickly all along.

BUYING OUTSIDE OF CONTRACTS.—In the old associations the difficulty in securing a stated percentage of raisins was a fundamental one. It is eminently desirable that the company secure as big a percentage of raisins as possible, but if only 50 per cent of the acreage is signed up

ATTENTION! FRUIT GROWERS

10,000 Gravensteins, also leading varieties late apples at low prices. Besides we have peach, almond, pear, plum, prune, cherry and walnut trees at popular prices. Bench grafted resistant vines. Bargains in Sonoma county fruit and dairy ranches.

Address

A. J. GALLAWAY,
Healdsburg, Cal.

TREES

Our trees are pedigreed and the best that care can produce. There is already a shortage in many of the best standard varieties. While we are selling fast, yet our assortment is still complete. Write us now concerning your wants for this season.



The Silva-Bergtholdt Co.
P. O. BOX 177 NEWCASTLE, CAL.

LEONARD COATES NURSERY COMPANY

Originators and growers of pedigreed stock. Near State Highway; please call. Catalogue free. Morganhill, California.

the company is still in good shape. It need only announce that it will pay contract price or 3 cents for outside raisins, and the packers will have to pay the 3 cents, that price will be sustained, the crop will move freely as it always moves freely when the price is steady, the company will be protected in its purchases and the desired assistance to the industry will have been given.

Still, the bigger the acreage signed up the better the results for the industry, and if the packers have no acreage left to fight with they will come absolutely to terms, the injury of fighting will be eliminated and the price can be made 4 cents as readily as 3¼ cents. It is pleasant to announce that contracts were coming in rapidly by mail soon after they had been sent to the growers and indications are all for substantial success.

The grower thus profits by contracting his raisins, and by subscribing for stock he profits by providing funds to prevent the weak-kneed grower from injuring the industry and helps to support the industry as a millionaire would who would throw all of his capital into the business after the moral support of all the growers was behind him.

FINANCIAL BENEFITS.—With a crop the size of this, and prices like the average paid this season, the loss to the growers is nearly \$2,000,000 as compared with a reasonable sweatbox price, or twice the capital stock of the company. In other words, if next year would be like this in crop and prices, the grower by having a company get good prices could pay his share of the capital stock and twice over get as much for his raisins as he did this. He would also have the moral satisfaction of getting legitimate returns for his labors.

HIGH VS. LOW PRICES.—Let us follow out high vs. low prices and see that high prices mean quicker sales all along than low prices, and the ultimate consumer is just as well off. A 3½ cent sweat-box price means a wholesale price of 6 cents f. o. b. Fresno, cost of selling included, for seeded raisins, the way most are sold. Add 1¼ cents for freight to New York and they cost 7¼ cents there. Take 1 cent for wholesaler's profit, though it would be less than this, and the retailer makes over 4 cents profit, or 50%, in selling at two pounds for a quarter, just the same price he asks when raisins are bringing only 2 cents to the grower.

Now a 2 cent sweat-box price means a wholesale price of about 4 cents, and as the wholesaler sells always on a given margin, he makes only about 6/10 of a cent on a pound, instead of nearly a cent, so little that he does not care to push sales, especially when bad prices mean probably worse prices to come and loss on his stock.

Now the retailer could sell at 12½ cents if he paid 9 cents and never feel it, so an analysis shows that not only do raisins move better on a 3½ or 4 cent basis than on a 2 cent basis, but the consumer pays more, and that if the market was reasonably strengthened, 5 cents would be a reasonable sweat-box price.

Nothing more need be said about the desirability of getting better prices and the benefit all around that better prices would be. Apparently the "Million Dollar Corporation" is founded on correct lines, it has a flexible system of management, the ability of its directors insures that the policy will be correct, and the growers are giving it enthusiastic support.

Strawberry Plants

Pure Bred, High Grade,
Well-Rooted, No Disease.

Best Western varieties for home or shipping. No order too large or too small for prompt shipment. Write us.
ROUTLEDGE SEED & FLORAL CO.,
Portland, Oregon.

KIRKMAN NURSERIES

TREES
THAT
GROW
AND
BEAR
TRUE TO
NAME

We still have a fairly complete stock of trees and vines and will be glad to figure on your needs in this line. Our catalog will be a help to you. Write for it.

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USERS OF

CYANIDE OF
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will do well to obtain our quotations before buying elsewhere.

Haas, Baruch & Company
LOS ANGELES, CAL.

EXCELSIOR HOOK
FOR CITRUS AND
OTHER LIGHT
PROPPING

TREE SUPPORT

SPRING LOCK HOOK
FOR DECIDUOUS PROP-
PING AND TRAINING
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HOOKS ARE MADE OF FLAT
GALVANIZED STEEL, 1¼ INCHES WIDE.

BETTER AND CHEAPER
THAN UNSIGHTLY PROPS

Will last as long as the Trees.

Prices per thousand,
F.O.B. Pomona, Cal.:

Excelsior hooks - \$12.50

Spring lock - 35.00

Wire extra.

RANCHERS MANUFACTURING CO., POMONA, CAL.

ORANGE TREES OVERLOADED

this season will require much propping. To prevent loss of fruit and serious injury to the tree, use

Thompson Adjustable Tree Supports

These hooks are made of heavy Galvanized sheet steel so formed as not to injure the bark, and are in every respect thoroughly reliable and satisfactory.

Price \$13.50 per 1000 f.o.b. Los Angeles.

THOMPSON MFG. CO.

2435 EAST EIGHTH STREET, LOS ANGELES, CAL.

Can also be had of Fruit Growers' Supply Co., Los Angeles.

Rubidoux Nurseries

P. M. RASMUSSEN, Manager.

TREES, SHRUBBERY AND RARE PLANTS
Landscape Gardening a Specialty
Plans and Specifications Furnished.

RIVERSIDE, CAL.

Raisins and Other Cured Fruits in Great Britain.

To the Editor: Your articles, together with published correspondence from growers, referring to the rather discouraged condition of the raisin market in California in November, were read with much interest. "Competitive marketing is the source of all the trouble," or the system in vogue, as indicated in your issue of November 9th, and after the experience raisin growers have had in the past, it is somewhat strange that a majority decision cannot be arrived at. While free trade prevails in this country, or at least while there is but a very small duty on cured fruits, it would seem that the growers and packers could agree to place on this market a percentage of the crop now on hand, for if it sold at little or no profit, the reduction of stock in hand would have the inevitable result of pushing prices up and cleaning up stocks, so that the good sense of all would have one more chance to make itself evident by completing an organization before another crop is ready.

This continual squabble just as a crop

is ready for market is fatal. The best selling season is soon past, and another hold-over looms up, destroying all hope of much improvement for the next crop. I understand the difficulties of the situation, having owned a raisin vineyard in Fresno in stormy as well as in peaceful times, but it does seem to me that there should be enough common sense among, say a dozen of the largest growers who would join hands with the packers in the foundation of some system of organized marketing which would result in benefit to all. The number of individual growers is far too great and their opinions far too varied to hope for any general unanimity of action at the start, but a dozen growers and a dozen packers could set the ball rolling.

As to selling prices, those quoted everywhere in England at this time are 8c. to 14c. a pound for currants; 12c. to 18c. for Sultanas; and 10c. to 14c. for loose raisins, for cooking. At 14c. they can be had "stoned," or stoned to order.

OTHER DRIED FRUITS.—Dried apricots are offered at the almost universal price of 20c., and the supply so far seems to have come mostly from Australia. Dried peaches, prunes, and apples, generally at 16c., and a great many are sold mixed at this price, with a few apricots thrown in. All of these dried fruits are much more largely used than formerly, but California distributors must have been content with the domestic markets, as but little attention has been paid to that of the British Isles. "Australia" is becoming recognized as synonymous with fruit and wine, while California might easily have maintained the lead.

At a grocer's exhibition in Agricultural Hall, London, a magnificent show, in a large building, I saw nothing from California but a broken box of last year's prunes, and a very dirty box of wormy peaches. It was disappointing to me. The inference was that the home market was all-sufficient. Is it?

Reading, England. LEONARD COATES.

DOESN'T LIKE ACCIDENT LIABILITY AND HINDU NEIGHBOR.

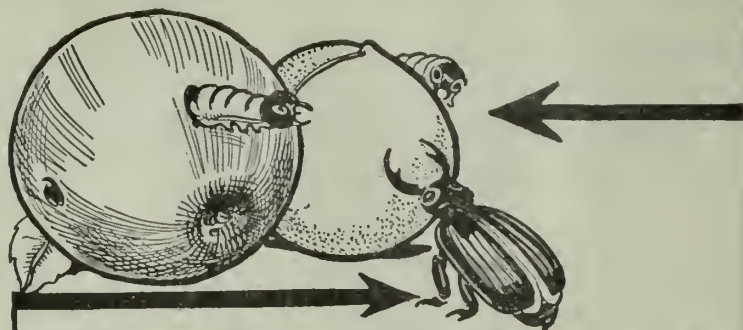
To the Editor: Your issue of November 2 contains reference to two conditions what may well cause the Eastern land seeker to hesitate before investing in California property.

The first is the employer's liability law as it applies to farmers and the second is the reported sale of land to Hindus.

Most farmers are carrying by far too great a proportion of taxes now. The tendency today, and particularly in California it seems to me, should be to encourage agricultural pursuits. Other things being equal a man is not going to take up farming where he has an additional burden to carry.

Is there not some way by which the sale of land to aliens can be stopped? Am I correct in my impression that Americans are not permitted to purchase land in Japan? I for one should not fancy in having Hindus, Japanese or Chinese as next door country neighbors, but what protection could I have if my neighbor should choose to sell to these people? It seems to me that to permit aliens to acquire landed interests is a matter of considerable menace to the Pacific Coast. WM. R. WATSON. Northfield, Minn.

[The California legislature will assemble next week. The questions you mention will occupy much of its time, no doubt. Keep your eye on the cat.—EDITOR.]



When You Go Murdering

the vermin that's eating the life out of your trees see that you use a spray which will kill the egg as well as the insect. If you do you'll have clean fruit. Use

Universal Orchard Sprays

They are quick and sure. They penetrate the bud clusters and kill the eggs. We have spent a good deal of time and money in experimenting with all kinds of sprays and in the Universal brand we have a sure cure for sick and ailing trees.

Our book on spraying sent free of charge. Write for it.

Insecticide Dept.
Balfour, Guthrie
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PAUL R. JONES
Entomologist
350 California Street
San Francisco, Cal.

CHOICE FRUIT TREES

BY THE OLD AND RELIABLE SMYRNA PARK NURSERIES

Apple, Cherry, Peach, Pear, Apricots, and Figs a Specialty.

VERY SELECT TREES

BE SURE AND WRITE US BEFORE ORDERING YOUR FUTURE SUPPLY OF TREES

SMYRNA PARK NURSERIES

Ceres, California
Campin & Moffet, Props.

ARE YOU INTERESTED IN APPLE PLANTING? IF SO, LOOK OVER THIS LIST OF VARIETIES:

Gravenstein
Jonathan
N. Y. Pippin
Winter Banana
Yellow Bellefleur
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White Astrachan

Red Astrachan
Arkansas Black
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W. W. Pearmain
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Baldwin
Stayman Winesap

Rome Beauty
Alexander
Spitzenberg
Ben Davis
Black Ben
Dellelous
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A post card will bring you our price list and descriptive Catalogue. Your order will bring you these trees, freight prepaid, and if given proper care and cultivation, they will bring you an income that will bring you the sunny side of Easy Street.

CHICO NURSERY CO., Chico, Cal.

FOR SALE

HALF MILLION ORANGE SEED BED STOCK

Strong thrifty 8 months old trees, now running from 10 inches to 20 inches high.

EUREKA LEMONS. WASHINGTON NAVELS. VALENCIA I.T.E. MARSH SEEDLESS GRAPE FRUIT.

All budded from Pedigreed trees as to quality and quantity Guaranteed free of scale.

T. J. WALKER NURSERIES

(Established 1895)
San Fernando, Cal.



the brand on this sack means something to every alfalfa grower—

It is the word of this house that no better alfalfa seed can be bought than Germain Premium Brand.

Following our slogan of quality, our buyers went into the fields and bought this seed—not from samples in the office—but out on the ground where they could consider every item in the selection of clean, strong seed.

Every pound of Germain Premium Brand is triple cleaned—twice in the field and once in our own mills—and again we say that it is as near perfection as experienced judgment and machinery can make it.

Look for the stencilled brand and lead seal.

FARMOGERM

the marvelous culture of nitrogen gathering bacteria, will increase your alfalfa yield from 50% to 200% at a cost of two dollars an acre.

Write Dept. C or Free Booklet.

Germain SEED & PLANT CO
Established 1871
326-328-330 SO. MAIN ST.
LOS ANGELES, CALIFORNIA

Mistaking Die-Back for Walnut Blight

To the Editor: Last week I received a letter from a nurseryman saying that a party who called upon him the day before had claimed that a man had visited my place and had pointed out to me the "blight" in the "limbs and wood" of one of my Wonder walnut trees. I wish therefore to state these facts:

The man did visit my place two years ago last summer, on my invitation. I showed him the original "Willson Wonder" tree, and noticed that he scrutinized it very closely, as though he was looking for something.

Then I showed him some five-year-old English seedlings which had been grafted the previous spring to Willson's Wonder. He scrutinized these in the same way, and when he came to the second tree exclaimed: "Ha! Blight!" and pointed out the tip of a small graft which was partly dried and discolored. I asked him if he would call that "blight," and he said he would. I told him I would not call it such, and drew his attention to the limb that was grafted, and the condition of which was undoubtedly the cause of injury and lack of growth of the tip referred to. It was as follows: A limb about one and one-half inches in diameter on the lower south side of the tree had been poorly "cleft-grafted" with a large scion which opened the cleft widely. The wax had been poorly put on and was all off of the side opposite the scion, leaving

the cleft open to dry clear through to the scion. The bud which started first had grown perhaps a foot in length, and had been checked by two others, one on either side lower down, which had grown two or three feet and had taken nourishment from the central one. Anyone who has had any experience in grafting can appreciate the condition, and that any fruit tree, as apricot, peach or prune, etc., would do the same thing, without being accused of having any disease.

But if there was any blight there I wanted to know it, and I cut the injured tip off and dissected it then and there, before the party, and could not find anything that could reasonably be called "blight."

And further: while ordinarily one would cut off such a poorly grafted limb, which could never heal over properly. I have left it just as it was, to see if any "blight" would develop. It is there today, more than two years after, with no sign of blight on it, or the rest of the tree, or any other tree I have. Neither have I ever seen any blight on any limb of any tree of "Willson's Wonder" that I have ever ever grown. No more could be said in favor of any variety.

The gentleman was of course mistaken, and could not distinguish between blight and a die-back from physiological causes which I have described. F. C. WILLSON.

Sunnyvale.

[This is interesting. Every grower should learn to distinguish between die-back and blight; otherwise mistakes are likely.—EDITOR.]

HORTICULTURAL QUARANTINE.

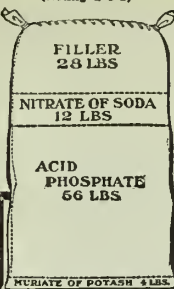
An important amendment to the alfalfa weevil quarantine now in effect in California against the States of Utah, Wyoming and Idaho, to include shipments of nursery stock into California from these States, was authorized by State Horticulturist Cook last week.

Hereafter no nursery stock from Utah, Idaho or Wyoming, unless wrapped in excelsior or some other material which would not contain the pest, and unless the containers, both boxes and cars, are fumigated, will be admitted.

The order was issued to further insure the \$50,000,000 alfalfa crop of California from danger from the weevil. The quarantine now exists against alfalfa hay, seeds, beehives and nursery stock.

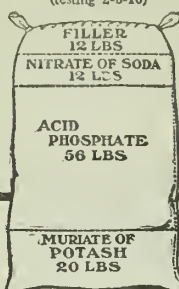
The quarantine against the entire citrus white fruit fly, which includes all border States from North Carolina to Texas, was modified today in a new quarantine order to include only the known host plants of the insect. Heretofore every plant has been excluded except the tomato. The modification makes it necessary to defoliate the plants.

150 pounds of an
organic Fertilizer
(testing 2-8-2)



Both of these are
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Fertilizer
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If you prefer ready-mixed fertilizers, insist on having enough Potash in them to raise the crop as well as to raise the price. Crops

contain more than three times as much Potash as phosphoric acid.

It was found years ago that the composition of the crop is not a sure guide to the most profitable fertilizer, but it does not take a very smart man to figure out that a well-balanced fertilizer should contain at least as much Potash as Phosphoric Acid. Insist on having it so. If you do not find the brand you want, make

one by adding enough Potash to make it right. To increase the Potash 4 1/2 per cent. (for cotton and grain), add one bag Muriate of Potash per ton of fertilizer; to increase it 9 per cent. (truck, potatoes, tobacco, corn, etc.), add two bags Sulphate or Muriate per ton.

Talk to your dealer and ask him to carry Potash in stock or order it for you. It will pay you both, for **Potash Pays**

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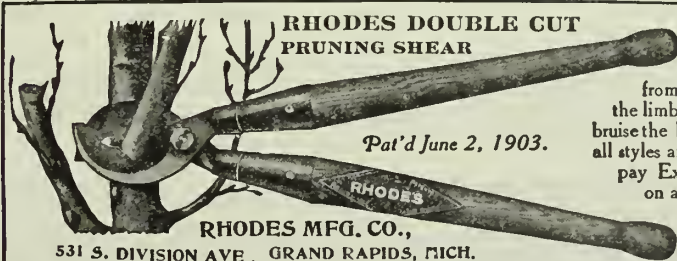
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Are "Alfalfa Rats" Field Mice.

To the Editor: Can you give us any information about poisoning field rats? They are increasing rapidly, and it looks as though they would destroy the alfalfa in one of our fields. They won't eat grain. Suppose they might eat carrots or sweet potatoes; but we would like to get information from wider experience if possible. We have five hundred acres or more infested, so the cost per acre is a serious matter. — S. R. C., Clarksburg, Yolo County.

We do not know exactly what animal you mean by "field rat," but presumably it is a field mouse from what you say of its destruction of alfalfa. It may be the same pest which did that work in Humboldt valley a few years ago and earned for itself the term, "Nevada Mouse Plague." The animal is described as black, about five inches long with a two-inch tail beyond, ears flat and inconspicuous, etc. This pest has been noted in Northeastern California. Whatever may be the classification of the rodent, it is probable that it can be reduced by the methods described by Piper in Farmers' Bulletin, No. 352, and we therefore cite the most successful treatment which was found to be effective and cheap.

Tests with various baits or vehicles for poison show that three possess distinct advantages. These are alfalfa hay, green alfalfa, and crushed wheat.

ALFALFA HAY.—Alfalfa hay was found to be the best vehicle or medium for carrying the poison in winter. It was used extensively in Humboldt valley up to the time green food appeared in March. A single treatment of the fields destroyed from 85 to 95 per cent of the mice:

Chopped alfalfa hay 30 pounds
Strychnia sulphate 1 ounce
Water 5 or 6 gallons

The alfalfa hay should be fresh and green rather than bleached. Either chopped hay, including stems and leaves, or the fine material, chiefly leaves and blossoms from the bases of stacks, may be used. The chopped hay is preferable, since the stems retain the moisture longer. The hay should be chopped into about 2-inch lengths, an ordinary feed cutter being best for the purpose. The required quantity should be placed in a large metal receptacle, sprinkled with 3 gallons of fresh water, and well mixed with a pitchfork. Dissolve 1 ounce of strychnia sulphate in 2 or 3 gallons of water by heating in a closed vessel. Sprinkle the solution over the dampened hay and mix well until the moisture is all taken up. The hay may now be sacked and is ready for use.

Only enough of the material for immediate distribution should be prepared, as it deteriorates when kept for several days. It is best distributed by hand, placing a small pinch, equal to a teaspoonful, near the entrance of each burrow, and scattering a little here and there along the surface trails. Care should be taken to place the poison a little to one side of the mound to prevent it from being covered by the earth thrown out. In cold weather, when the mice move about chiefly in their underground runs, it should be dropped into the burrows. The dampening of the hay freshens it remarkably and makes it a tempting substitute for green food. Many of the animals eating it die on the surface, but about 60 per cent of those destroyed die underground. The poison is effective for several days, and since much of it is carried into the burrows to be eaten later, its full effect is not at once evident.

Some farmers hesitate to distribute poisoned hay over their land for fear of poisoning stock. If properly done, how-

ever, there is practically no danger. The proportion of strychnine is small and calculated especially for mice. Rain or the irrigation of fields renders harmless any of the material left, and the small quantity it is necessary to put out soon shrivels to almost nothing from exposure to the sun. In Humboldt valley extensive poisoning was not attended by a single accident. It is recommended, however, that stock be kept out of fields for a few days after poison has been distributed.

GREEN ALFALFA.—In Carson valley, in April, poisoning with green alfalfa hay was strikingly successful. Although the experiments in alfalfa fields were in places where green food was abundant, still nearly all mice were killed in the areas treated. These animals habitually cut and store sections of alfalfa shoots during summer, and it is not surprising that the same material poisoned and placed in their runs should prove effective:

Green alfalfa 45 pounds.
Strychnia sulphate 1 ounce.
Water 1½ gallons.

Procure fresh green alfalfa, preferably young shoots, though leaves and tops of older plants also are good. Chop into lengths of 2 or 3 inches and place in a water-tight receptacle. Heat the strychnia in half a gallon of water in a closed vessel until thoroughly dissolved. Add the poisoned solution to one gallon of cold water and sprinkle it slowly over the alfalfa, mixing until the moisture is all taken up. In general the same method of distribution recommended for alfalfa hay should be followed. Several short pieces are sufficient for each burrow. Owing to the abundance of green food, greater care should be exercised in placing baits in the holes and along runways. As green alfalfa withers quickly when exposed to the sun, evening hours or cloudy days are best for its distribution. Though it can hardly be used extensively enough to suppress well-established plagues, it is recommended for small areas, or where mice are not excessively numerous. It is especially valuable for destroying mice along ditch banks or about the borders of fields during the irrigation of fields in summer.

CRUSHED WHEAT.—Crushed wheat possesses decided advantages over whole grain as a medium for poison. It is easier to prepare, and is more rapidly eaten, especially by young mice in summer. The cost is not serious when mice are not extremely abundant over large areas, or when it is used to prevent plagues in the earlier stages.

Crushed wheat 60 pounds.
Strychnia sulphate 1 ounce.
Water 2 gallons.

Heat the strychnia sulphate in the water in a closed vessel until completely dissolved. Sprinkle the solution over the wheat and mix well. Sweetening or scenting the preparation is unnecessary and even detrimental. When it is desirable to keep the poison several days, add two tablespoonfuls of powdered borax to prevent fermentation.

This preparation was used extensively in Carson valley in April to check a plague of mice before alfalfa grew too high to prevent effective poisoning. About 85 per cent of the mice were killed by a single treatment, and this was followed later by poisoning along the ditches where the animals persisted. The cost was about 40 cents per acre.

OBTERATING BURROWS.—In the lands traversed by the scourge in Humboldt valley, where over large areas mouse holes were scarcely a step apart, it was at once evident that there was great waste of material and labor in poisoning. Usu-

ally there were ten or more holes for each pair of mice, and in fields partially deserted the proportion of unoccupied holes was much greater. When all the holes were obliterated, the mice soon reopened those occupied, and poisoning could be done with the certainty of treating only the occupied burrows. A brush drag proves best for the purpose.

By this method a saving of about 40 per cent in labor and material resulted, and the average cost of destroying mice with alfalfa hay was reduced to about 35 cents per acre. While obliterating holes is practically only under such extreme conditions as were presented in Humboldt valley, it there proved of the greatest importance.



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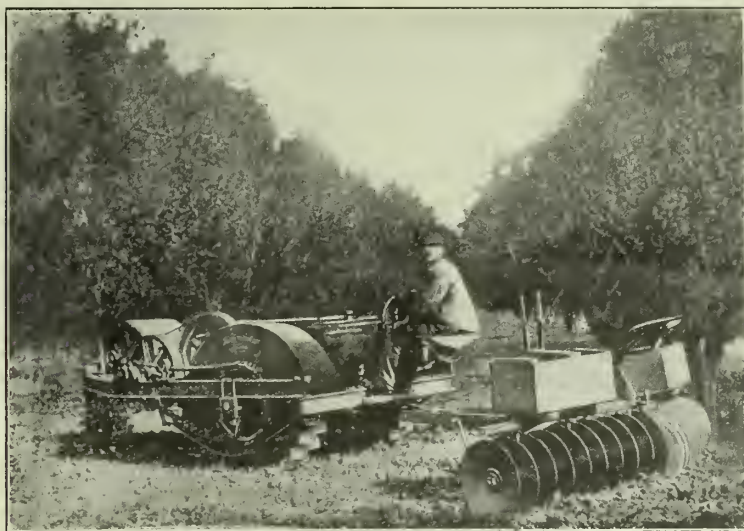
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TURNS IN A 10-FOOT RADIUS.

6 FEET 9 INCHES WIDE, AND ONLY 5 FEET HIGH.

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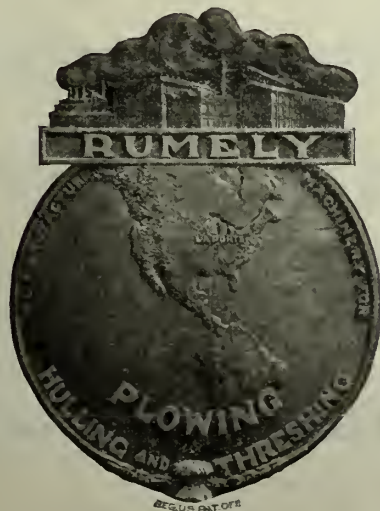
YOU CAN GO RIGHT UP UNDER THE TREES WITH IT.

IT HAS 14 H.P. AT THE DRAW-BAR—28 H.P. AT THE BELT.

WEIGHS ONLY ABOUT 4 TONS.

YOU CAN'T GO WRONG ON THIS TRACTOR—IT IS BEING USED BY MANY FARMERS WITH GREAT SUCCESS. IT HAS AN ESTABLISHED REPUTATION—IS MADE IN CALIFORNIA AND WAS FORMERLY KNOWN AS THE JOHNSTON TRACTOR.

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FEED FOR FATTENING HOGS.

To the Editor: Barley and wheat are selling in the stores here at \$1.75 cwt., middlings at \$2.10, corn at \$2.35, and alfalfa meal at \$1.25. Would you please tell me what you would consider the best mixture to feed to 100-lb. hogs to fatten for killing? And with pork selling at seven cents on the hoof, would there be any margin of profit left?—M. W., Cool, Cal.

About two parts of ground wheat to one of barley would be about right. The grains had better be ground before feeding. At the above prices this would be better than using middlings or corn. Would advise mixing in some soy bean meal, or meat meal. If you have some fine quality alfalfa hay, it would be worth while to substitute it for a part of the mixture, although it might not pay to buy alfalfa meal. It is doubtful if it would pay to fatten hogs on the grain alone, as the market does not discriminate sufficiently, if at all, between well finished and poorly finished hogs.—D. J. W.

HOGS, ALFALFA AND GRAPES.

Phil Baer of Redbanks, Tulare county, has developed an interesting proposition in the growing of Almeria grapes, the kind that are shipped to New York in cork dust every year. These have been very difficult to grow successfully in California, but Mr. Baer this winter had good success with a number of crates he shipped East.

He is intending to have a plot of them growing on an overhead trellis. Under this trellis alfalfa will be grown and to harvest the alfalfa hogs will be turned in. The grapes will be so high up that the hogs cannot reach them. Thus three crops can be secured, grapes, alfalfa and hogs.

Mr. Baer's experience leads him to believe that the grapes will do well and bear well this way and the experiment is being awaited with interest.

AGE OF BUTCHER STOCK.

Andrew Boss of the Minnesota College of Agriculture notes that the flesh of very young animal frequently lacks flavor and is watery. An old animal, properly fattened and in good health, would be preferable to a young one in poor condition. The meat from young animals nearly always lacks flavor. The best meat will be obtained from cattle that are thirty or forty months old, though they may be used at any age if in good condition. A calf under six weeks of age should not be used for veal and is at its best when about ten weeks old and raised by the cow. Hogs may be used at any age after six weeks, but the most profitable age at which to slaughter is eight to twelve months. Sheep may likewise be used when two to three months of age and at any time thereafter. They will be at their best previous to reaching two years of age, usually at eight to twelve months.

LESS LIONS, MORE STOCK.

In the last six years 1685 mountain lions have been killed in the State of California, according to the report of the State Fish and Game Commission.

Humboldt county yields more lion pelts each year than any other county in the State, so the report shows. A total of 344 bounty claims have been paid to Humboldt county lion-killers in the six-year period. Siskiyou county is the only county that approaches Humboldt county in the number of lions killed, and its record is only 161.

E. Siem & Son have shipped sixty cars of hogs from Denair, Stanislaus county, since August 1st, paying the neighboring farmers close to \$80,000 for the animals. W. H. Goss has gone into the poultry business on a large scale near Terra Buena, Sutter county, having installed an incubator capacity of 6,000 eggs, with brooding and yarding capacity in proportion.

WORLD'S RECORD HOLSTEINS

Riverside Sadie De Kol Burke

Arnold De Kol, one year.....28,065.9 lbs. milk
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Place at the head of your herd a bull strong in the blood of these cows.

We invite you to inspect our herd and will cheerfully give you further information and prices.

A. W. MORRIS & SONS,
Woodland, Cal.

The Turlock Creamery Co. has just installed a pasteurizing vat of 400 gallons capacity. The vat was constructed by a Chicago firm and is said to be the first used in the San Joaquin valley. It is claimed that after cream has been processed it can be kept in cold-storage in perfect condition for some time.

L. W. Hutchins, manager of the J. Brynteson dairy ranch near Turlock, has purchased from A. W. Morris & Son of Woodland a high-class Holstein bull. It is the intention of the owners of this 800-acre ranch to build up their herd to the highest standard.

C. S. Wakefield, of the Manor Farm, Petaluma, last week shipped a number of his Rhode Island Red chickens to parties in Honolulu.

Cutter's Anthrax and Blackleg Vaccines

are given the preference by 80 per cent of California stockmen because they give better results than others do.

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You can't afford to wait for dry weather in the winter time. Stop a minute—think of those years in the past that you would have liked to put in another quarter section IF THE RAIN HAD STOPPED LONG ENOUGH FOR YOU TO PLOW. How much more money could you have made?

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The owner of a Caterpillar puts in all the land he wants. He doesn't have to depend on weather or ground conditions. The Caterpillar, with its smooth steel track, will work as well in the rain as it will in dry weather. It is THE ONLY TRACTOR THAT IS PERFECTLY ADAPTED TO ALL FARM WORK.

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Lining for Small Storage Reservoirs-1

[Written for the PACIFIC RURAL PRESS by
F. W. KERNS and C. R. SESSIONS.]

Clay puddle is a good lining and is probably the cheapest when a good clay can be obtained. Clay having in it sand or gravel will do, but vegetable matter must be kept out. Adobe will not do because it shrinks and cracks when it dries. The clay is spread over the surface with a scraper and puddled by merely flooding the reservoir with water, or by sprinkling and tamping the surface or having it tramped by horses or sheep. This layer should be four inches or more in thickness, depending upon the depth of the water and the quality of the clay. This lining can be made with the help of tools readily obtainable on the farm. It is not seriously injured by a small settlement of the levee bank and can be easily repaired.

The cost of a clay puddle lining depends upon the cost of the clay, or in other words, the length of the haul. For a haul of two or three miles and a thickness of four inches, the cost per square foot should be about one cent. If the action of small waves caused by the wind tends to cut the slope at the water-line, the lining may be protected by a covering of rock or rip-rap. This covering should cost about one-half to three-quarters of a cent per square foot in addition to the cost of the puddle lining. Of course this covering does not extend over the entire surface of the reservoir, but only along the water-line on the side slope.

Where cobbles or river boulders are available, a lining may be made by laying up the cobbles in a lime mortar and finishing the surface with a cement plaster about one-half inch thick. The lime mortar should be mixed one part of lime to five parts of clean sand. Hydrated lime may be added to the cement plaster to make it more nearly water-proof, and should equal about 10% by volume of the cement. On any but a very small reservoir trouble will be experienced with this lining from cracks caused by the shrinking of the cement plaster. A good concrete lining will be just as good and cost no more, so that unless there is some special reason for using the cobbles it may be better to put in a concrete lining. This cobble plastered lining will cost about 13 cents per square foot. With this lining it is of course not necessary to hold to the two to one slope on the sides of the reservoir. A slope may be used as steep as one-half to one and some saving will be effected in the construction of the levee.

A concrete lining is often used and may be made just as the ordinary concrete sidewalk is laid. The surface to be lined should be thoroughly settled by sprinkling and rolling and all depressions carefully filled and tamped. It should be well troweled to bring the cement to the surface. The addition of hydrated lime equal to 10% by volume of the cement used will

fill the smaller voids not filled by the cement and will make the concrete more nearly water tight.

When the reservoir is a large one, contraction and expansion of the lining due to changes in temperature and shrinkage in setting are taken care of by expansion joints left between the blocks or slabs. These joints are made by laying wooden strips, with beveled edges so that they can be easily removed, between the blocks, and filling the space with asphaltum when the strips are removed. The asphaltum should have a high melting point, and if the heat is to be excessive it should have mixed with it a proper amount of limestone dust and sand. These blocks or slabs should not be made larger than about 200 square feet.

When the reservoir is comparatively small the shrinkage may be taken care of by reinforcing in the form of wire mesh.

As soon as the concrete has an initial set, usually within six hours, the surface should be covered with sand or soft earth, which should be kept wet for ten days to prevent surface checking and insure even setting and freedom from cracks. If possible, it is best to pump a reservoir having a concrete lining of any kind full of water as soon as the concrete will stand the water pressure. This can be done safely about 24 hours after laying the concrete. This will prevent checking or cracking better than covering with moist sand, and in a very warm climate, filling with water becomes almost necessary to secure a good job.

The proportions of cement, sand and rock or gravel will depend upon the material to be had in the vicinity. If good clean material can be secured, one part of cement to seven parts of gravel, or sand and rock, will give a concrete of ample strength and good density. A concrete that is dense is not only the most impervious, but it is the strongest. To secure the greatest density and strength, the materials should be so proportioned that the sand fills the voids in the rock, and the cement and finer grains of sand fill voids between the coarser grains of sand. If this is accomplished, no spaces will be left to weaken the concrete or allow water to seep through. The best proportions have been determined for the materials usually used in different localities, from firms supplying the materials. If the particular sand, rock or gravel has not been used previously, a mechanical analysis can be made to determine the best proportions.

A concrete lining $3\frac{1}{2}$ inches thick will cost about 9 cents per square foot in place. If the cost of water is high, it will pay to plaster a concrete lining with a cement mortar composed of one part of cement to two parts of sand. This should be applied to the surface of the concrete as soon as possible and worked well with a trowel to secure a good bond with the concrete and make a water-tight surface. A plaster about one-half inch thick, costing about 4 cents per square foot is ample; if made thicker it is liable to crack. Concrete linings as thin as 2 inches have been used on ditches, at a cost of about 6 cents per square foot; but work as thin as this is not advisable, as it is easily broken, and it is difficult to repair so as to make a water-proof joint at the break.

(To be Continued.)

A trace of 4,140 acres of citrus land situated a few miles from Orland in Glenn county has been sold by G. W. Murdock to a syndicate of Los Angeles capitalists headed by H. W. Chase. The consideration is given as \$200,000. It is reported the land will be planted to orange and lemon trees, subdivided and sold in small tracts to suit purchasers.

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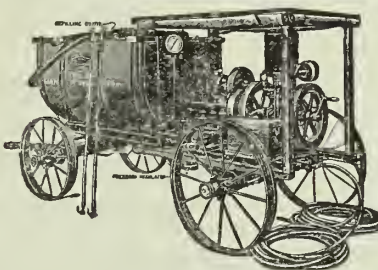
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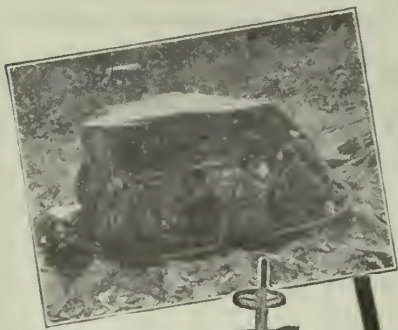
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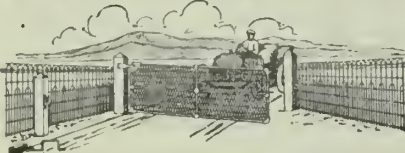
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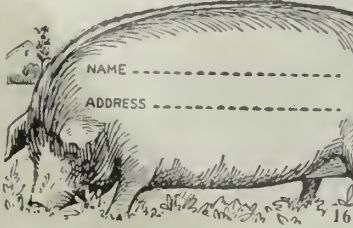
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Live Stock, Farm and Field Products.

Statistics for farm products for California are presented in a bulletin soon to be issued by Director Durand, of the Bureau of the Census, Department of Commerce and Labor. It was prepared under the supervision of John Lee Coulter, expert special agent for agriculture.

The returns for live-stock products obtained at the census of 1910, like those for crops relate to the production of the calendar year 1909. It is impossible to give a total representing the annual production of live-stock products, for the reason that the net value of products from the business of raising domestic animals for use, sale, or slaughter can not be calculated from the census returns.

DAIRY PRODUCTS.—The number of farms in California reporting dairy cows on April 15, 1910, was 61,101, but only 46,376 reported dairy products in 1909. That there should be this difference is not surprising. Doubtless some farmers who had dairy cows in 1910 had none in 1909, while other farmers neglected to give information for the preceding year, or were unable to do so perhaps because the farm was then in other hands. Dairy products in general are somewhat less accurately reported than the principal crops. This is particularly the case as regards the quantity of milk produced. The number of farms which made any report of milk produced during 1909 was 42,112 (somewhat less than the total number reporting dairy products), and the number of dairy cows on such farms on April 15, 1910, was 315,000. The amount of milk reported was 154,902,000 gallons; assuming that there were the same number of cows in 1909 as in 1910, this would represent an average of 491 gallons per cow. In considering this average, however, it should be borne in mind that the quantity of milk reported is probably deficient and that the distinction between dairy and other cows is not always strictly observed in the census returns.

By reason of the incompleteness of the returns for milk produced the Census Bureau made no attempt to determine the total value of dairy products for 1909. For convenience a partial total has been presented comprising the reported value of milk, cream, and butter fat sold and the reported value of butter and cheese made whether for home consumption or for sale. The total thus obtained for 1909 is \$20,444,000 which may be defined as the total value of dairy products, exclusive of milk and cream used on the farm producing.

Less than one-third of the milk reported as produced by California farmers in 1909 was sold as such. Large quantities of milk and cream were sold on the butter-fat basis. The butter made on farms in 1909 was valued at \$4,086,000.

The total number of sheep of shearing age in California on April 15, was 1,525,000, representing a decrease of 11.6 per cent as compared with the number on June 1, 1900 (1,725,000). The approximate production of wool during 1909 was 2,563,000 fleeces, weighing 14,065,000 pounds and valued at \$2,424,000. Of these totals about 11 per cent representing estimates. The number of fleeces produced in 1909 was 11.1 per cent less than in 1899. The average weight per fleece in 1909 was 5.5 pounds, as compared with 4.7 pounds in 1899, and the average value per pound was 17 cents as compared with 12 cents in 1899.

POULTRY PRODUCTS.—The total number of fowls on California farms on April 15, 1910, was 6,087,000. Of the 66,251 farms reporting fowls, 14,180 did not report any eggs produced in 1909, and 18,136 did not report any poultry raised in 1909. The production of eggs actually reported for the year 1909 was 35,908,000 dozens, valued at \$8,983,000. According to the 12th

census reports the production of eggs in 1899 was 24,444,000 dozens, the value being \$3,865,000. The latter figures, however, are somewhat in excess of the actual returns at that census, because they include estimates made to cover those cases where the schedule reported fowls on hand without reporting the production of eggs.

In order to make the returns for 1909 comparable with those published for 1899 similar estimates have been made, the method of estimate and the justification therefor being substantially the same as in the case of wool. The total production of eggs in 1909, including these estimates, was 41,022,000 dozens, valued at \$10,263,000. The total production of poultry in 1909, including estimates made on the same basis as for eggs, was 8,431,000 fowls, valued at \$4,421,000.

DOMESTIC ANIMALS.—The total value of domestic animals sold during 1909 was \$31,130,000 and that of animals slaughtered on farms \$2,497,000, making an aggregate of \$33,627,000.

This total, however, involves considerable duplication, resulting from the resale or slaughter of animals which had been purchased by the farmers during the same year.

The value of the cattle (including calves) sold during 1909 represented somewhat less than three-fifths of the total value of all animals sold, and the value of the swine sold represented less than one-sixth of the total.

The census of 1909 called for the receipts from the sale of all domestic animals raised on farms reporting and the value of those slaughtered during the year 1899, which amounted, respectively, to \$13,305,000 and \$2,450,000. The item of sales not closely comparable with that for 1909, when the inquiry covered all sales whether of animals raised on the farms reporting or elsewhere. It is believed, however, that in many cases the returns for 1899 also included receipts from sales of animals not actually raised on the farm reporting.

CROPS.—The total value of crops in California in 1909 was \$153,111,000. Of this amount 665.6 per cent was contributed by crops for which the acreage as well as the value was reported, the remainder consisting of the value of by-products (straw, garden and grass seeds, etc.) derived from the same land as other crops reported, or of orchard fruits, nuts, forest products, and the like. The combined acreage of crops for which acreage was reported was 4,924,733, representing 43.2 per cent of the total improved land in farms (11,389,894 acres). Most of the remaining improved land doubtless consisted of improved pasture land lying fallow, house and farm yards, and land occupied by orchards and vineyards, the acreage for which was not reported.

The general character of California agriculture is indicated by the fact that somewhat less than one-fifth (18.3 per cent) of the total value of crops in 1909 was contributed by cereals. Somewhat less than one-third (31.9 per cent) by fruits and nuts, and more than one-fourth (27.6 per cent) by hay and forage. The remainder, representing 22.2 per cent of the total, consisted mostly of potatoes and other vegetables, grains, and seeds other than cereals, sugar crops, and flowers and plants and nursery products.

The total value of crops in 1909 was 60.6 per cent greater than in 1899, this increase being, no doubt, due in part to higher prices. There was a decrease of crops for which acreage was reported, the greatest decrease, amounting to more than two millions of acres, being reported for cereals, while all other important crops showed increase in acreage, the greatest



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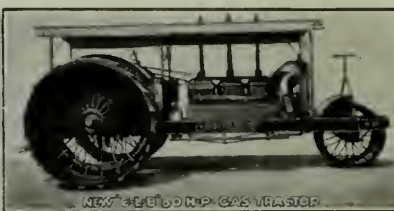


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absolute increase being that in the acreage of hay and forage.

VEGETABLES.—In 1909 the total acreage of potatoes and other vegetables was 151,962 and their value \$12,122,000. Excluding potatoes and sweet potatoes and yams, the acreage of vegetables was 79,163 and their value \$6,877,000, both acreage and value being more than twice as great as in 1899. The census report distinguishes between farms which make the raising of vegetables a business of some importance (having produced vegetables valued at \$500 or more in 1909) and other farms, on most of which vegetables are raised mainly for home consumption. There were in 1909 2075 farms in the first class, representing about two-thirds of the total acreage and more than two-thirds of the total value, the average acreage of vegetables per farm for these farms being 25.7 and the average value of product per acre \$90.61.

SMALL FRUITS.—Strawberries are by far the most important of the small fruits raised in California, with raspberries and loganberries and blackberries and dewberries ranking second and third, respectively. The value of the strawberry crop in 1909 was \$1,149,475. The total acreage of small fruits in 1909 was 9687, and in 1899, 6281, an increase of 54.2 per cent. The production in 1909 was 26,824,000 quarts, as compared with 14,582,000 quarts in 1899, and the value was \$1,789,000 in 1909, as compared with \$991,000 in 1899.

ORCHARD FRUITS.—The total quantity of orchard fruits produced in 1909 was 31,502,000 bushels, valued at \$18,359,000. Plums and prunes, peaches and nectarines, apples and apricots are the most important of the orchard fruits. The total value of the tropical fruits produced in 1909 was \$16,752,000, the value of oranges representing more than three-fourths of the total, and the value of lemons being next in importance. The production of grapes in 1909 amounted to 1,979,687,000 pounds, valued at \$10,847,000, and the production of nuts was 28,378,000 pounds, valued at \$2,960,000. Most of the nuts were English and Persian walnuts and almonds.

The value of all orchard fruits produced in California increased from \$14,527,000 in 1899 to \$18,359,000 in 1909; the value of tropical fruits increased from \$7,219,000 in 1899 to \$16,752,000 in 1909, and that of grapes from \$5,623,000 in 1899 to \$10,847,000 in 1909. It should be noted that the values for 1899 include the value of more advanced products derived from orchard and tropical fruits or grapes, such as cider, vinegar, dried fruits and the like, and may therefore involve some duplication, while the values shown for 1909 relate only to products in their original condition.

LIVE STOCK IN THE ORCHARD.

To the Editor: On page 587 of the PACIFIC RURAL PRESS of December 14 there is an article on "Pigs in the Orchard." You referred to running animals of any kind in the orchard as not the right thing. What about poultry, such as ducks, geese and chickens?

My soil is of a sticky nature when wet and to have chickens or any other kind of fowls tramping the land during the wet season and robbing the soil of its growth which should be plowed under in the spring does not seem right to me. I am not speaking of the amount of fruit they eat and destroy in the summer.

I have a neighbor who insists in running his flock in my orchard at all seasons, and declares he is benefiting me by doing so. If such is the case I would like to be shown. Kindly give both of us your opinion on the subject.

Gilroy.

E. P. ROSE.

[Too many fowls of any kind on too small an area of orchard is injurious to

the trees, and the injury will come soonest on a heavy soil. Ducks and geese are worse than chickens, for they will slap and plaster down the surface quicker and the soil will get hard and sour probably. We do not know how many fowls nor how much time, but when the soil begins to look like a hen yard, you may be sure injury has been done. As for fertilizing, you get more than you lose, but you should never allow fowls to interfere with a proper surface mellowness of the soil.—EDITOR.]

FEEDING VALUE OF CITRON MELONS.

To the Editor: Will you kindly inform me through the PACIFIC RURAL PRESS as to whether citron melons have any value as cow feed. Will citron melons serve to balance a ration with alfalfa? O. H. D. Modesto.

Citron melons are very largely water and do not contain much nourishment. In 100 pounds of citron melon there is 0.7 pound of digestible protein, 3.3 pounds digestible carbohydrates and 0.2 pound fat, which, giving a true value to the fat, means 4.5 pounds of nutrients. Alfalfa hay contains approximately 53 pounds of nutrients to the 100 pounds, counting the fat in the same way, making the alfalfa about 12 times as good, weight for weight. However, an added benefit to the citron melons comes in the fact that they are a succulent food and have an excellent physiological effect aside merely from the food content. This succulency makes it very good with alfalfa hay. It also balances up alfalfa very nicely.—D. J. W.

[The term citron should never be used without the suffix melon, in this State, because the citron is an ancient and honorable citrus fruit which we are growing on trees. The pie melon or citron melon was so called because in cold countries they make a preserve of the rind which has a fancied resemblance to the citron of commerce which is made from the skin of the citron.—EDITOR.]

THE HORSE COMING BACK.

A dispatch from Chicago states that the time has not yet come for the horse to pass into obscurity on account of the automobile was brought out at the International Live Stock Exposition at the stock yards.

"The horse may pass out of every other business, but he will never be supplanted in the army," said Major General William H. Carter, who has just assumed command of the Central Division of the army here. "I probably have made every experiment possible with the automobile in its use for army service, and my conclusion is that it will never be able to do the work now being done by the horse."

"The horse will soon be restored to his former importance," said Prof. Cary Gay of the Department of Animal Husbandry of the University of Pennsylvania. "The automobile is becoming so common that fashionable people are already going back to the closed carriage, with handsome livery and pair."

Rev. Russell Day, a famous Eton master, once ordered a boy to stay after school but, when the hour came, he himself was in a better temper. "What may your name be?" Mr. Day asked of the prepositor. "Cole, sir," replied the boy. "Then, my friend," said Mr. Day, "I think you had better scuttle."

"I wonder," said the youthful student, "how the prodigal son came to go broke?"

"I suspect," replied Farmer Cornstossel, "it was because he spent his time in town hangin' around talkin' about how to uplift the farmer."

DAIRY CATTLE.

CHOICE DAIRY COWS and heifers for sale, grade Holsteins, bred from best strains of thoroughbred Holstein sires. Located in Stanislaus county. Address Montgomery Baggs, 311 California St., San Francisco, or Hickman, Stanislaus county.

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M. HOLDRIDGE, Modesto, Cal.—Breeder of Holstein-Friesian cattle and O. I. C. hogs.

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R. CARTWRIGHT & SON, Angels Camp, Cal.—Breeders of Red Polled cattle. Young bulls for sale.

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HEREFORDS.—Fairfax Perfection heads herd. J. P. Cudahy, Belton, Mo.

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POLAND-CHINAS; large type. The Browning Stock Farm. W. H. Browning, Woodland, Cal.

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The Lawrence-Williams Co., Cleveland, O.

The Improvement of the Farm Egg.

[Written for PACIFIC RURAL PRESS BY
MRS. SUSAN SWAYSGOOD.]

This will be the first paper for the new year and I think we can make a good beginning by treating on this most important subject. No one doubts that there is room for improvement in the farm egg; but very few know how much. I have been to farms myself where hunger never would have forced me to eat of the eggs or meat of the poultry kept, and yet the people considered themselves up-to-date farmers. And in some ways were, too, but they lacked the fine sensibility of scientific cleanliness. The chickens ran loose and picked up impossible things; nests were made in unmentionable places and nothing thought of it other than to comment on the hens' contrariness. Now hens are scavengers, but if properly fed and cared for they will not eat all the rubbish that comes their way, but still when given their liberty, farmers should be careful what is left lying around.

POULTRY.

BUFF LEGHORN—Booking orders for spring delivery of day-old baby chicks from two-year-old breeding stock; also eggs for hatching by setting or 100; 6000 egg incubator capacity. Indian Runner duck eggs for sale. Baby ducks hatched to order. R. M. Hempel, R. F. D. 1, Lathrop, Cal.

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S. C. WHITE LEGHORNS—Heavy layers, California's greatest prize winning strain. Eggs, chicks, stock. Send for list. M. Duttbernd, Petaluma.

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BABY CHICKS from heavy layers. White Leghorns, Barred Rocks, R. I. Reds, Free folder. White Hatchery, Petaluma.

CHICKENS, DUCKS, GEESE, GUINEAS. Pea fowl. Address Wm. A. French, 545 W. Park St., Stockton, Cal.

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BRONZE Turkeys and Eggs. Ed Hart, Clements, Cal. Large size, good plumage, early maturity.

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QUALITY POULTRY SUPPLY HOUSE—Geo. H. Croley Co., 269 Brannan St., S. F.

Sometimes a flock will get limberneck, and whenever that occurs it is a warning that a cleaning up is necessary, for somewhere around is a foul carcass, it may be only a gopher that has been left unburied, but there is something sure, so it behooves the farmer to clean up.

A GOVERNMENT WORK ON EGG QUALITY.—The Department of Agriculture has issued a bulletin, together with a placard showing how the farm egg can be improved; the placard shows the relative keeping qualities of fertile and unfertile eggs. Some short time ago I commented on the bulletin and made extracts of the most important points. On page 28 we find mention of conditions that are prevalent everywhere—insufficient number of nests.

"Among the conditions which have some influence on quality and deterioration are an insufficiency of nests, dirty nests, irregularity of gathering eggs, allowing the males to run with the flock after hatching season, poor storing facilities, washing eggs, and careless methods of transportation from the farm to the village. It is doubtful if any other factor contributes more to the aggregate number of bad eggs on the farm than a lack of a sufficient number of properly located, clean nests."

And in this I fully agree, and even go further and say no one thing is cause for shortage of eggs reducing the number in each hen's yearly account than a lack of comfortable nests. When a hen lays she likes to feel secluded and for that reason, when free to do so, she will hunt around a whole day to find a place that promises quiet seclusion from the rest of the flock and the observation of people.

WHY NOT GOOD NESTS?—Now, why can't the poultryman or farmer humor the industrious hen in this instinct and provide nests that are clean and quiet. What is a little trouble if we are repaid ten fold for it. Besides the cash value, there is the feeling that we are doing something for our fellowman who is obliged to depend on us for healthy food. The large class of consumers are absolutely at the mercy of the producers and facilities of distribution for what they eat and the good or ill effects the food has on their health. Hitherto, farmers have not thought much along these lines, but the dawn of a new day is at hand when every man and woman will realize, that they are indeed, their "brother's keeper." Not in the sense that they will be meddling with his business, or of trying to domineer over what he shall eat or drink—not at all, but just in seeing that the other fellow is not poisoned with dirty disease germs through the food he eats.

It really looks such a small matter to provide nests for our hens that one would not think it was at all necessary to remind any one of it, but my experience is that very few provide sufficient clean nests for the number of hens on the premises. There should be at least one nest, more would be better, to every four or five hens, and these should be kept clean and free from vermin. At least twice a month the nest material should be taken out and burned and boiling water poured over the inside woodwork; when dry, paint the bottom board with coal oil and put in new straw. If an egg is accidentally broken in the nest it should be taken out and all straw with it, the nest cleaned at once and straw renewed. If left to bake on the boards decay sets in and germs develop that will infect all the eggs that are laid in the nest long after the breaking of the egg. So we see a great many things belong to one, every effect is preceded by a cause, if we can only keep the cause away there will be no effect, and sometimes the most simple thing we can imagine is the cause of a great many bad effects. An egg-shell is very porous and

absorbs whatever it comes in contact with and for this very reason care should be taken that from the time it is laid until it reaches the consumer it should be kept strictly clean.

PROPER STORAGE OF EGGS.—After clean nests must come clean storage facilities, for the eggs that are to be sold for food nothing less than a clean egg-case, furnished with clean fillers, the case kept

For Egg Profits you should use

HIGH PROTEIN

Meat Meal Bone Meal
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PREMIER POULTRY FOODS "Good as the best
Cheaper than the rest."

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It saves expense and
prevents disease.

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BABY CHICKS at \$12 per hundred.

EGGS \$6 per hundred in lots of less than 83 dozen lots. Orders in excess of above, 10 cents per dozen above highest market price. 75 per cent fertility guaranteed.

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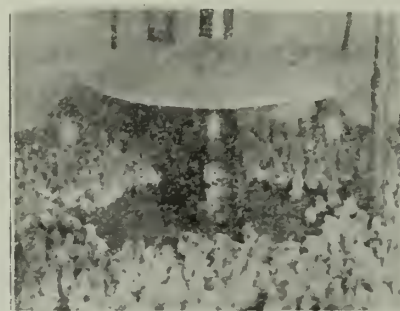
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We are the oldest and largest firm in this business, and in consequence of our long experience and completeness of equipment, we are in a position to serve our patrons in a way that is sure to satisfy.

Chicks shipped by express anywhere.

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OUR BOOKLET "CHICKENS" TELLS THE STORY. MAILED FREE. It contains interesting chapters on every phase of the poultry business.

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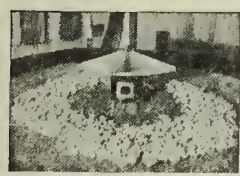
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My stock is thoroughbred and carefully selected for Standard and laying qualities.

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A few choice cockerels and pullets left. Eggs for hatching after January 1st.

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PATENTS

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DEWEY, STRONG & CO.,

911-916 Crocker Building, San Francisco.
Established 1860.

in a cool, dry, well ventilated room or cellar, will fill the bill. But how often we see eggs piled up in tin cans, dishes or other utensils and set out in a shed or porch waiting till some one goes to town so they can be sent to the grocery?

Nor is the farmer the only one that leaves eggs lying around; only a few days ago I was in a feed store where they buy eggs and ship to Los Angeles, and in looking around I saw eggs lying covered with dust in an old dirty looking case, only fit for kindling wood. I had a nice clean lot of eggs to sell, but my self respect would not let me sell them to go in such company as the ones I saw in that case, so I took them to a restaurant where, at least, somebody would get the benefit of my care.

In handling meats of all kinds deterioration can be more easily detected than is the case with eggs, because the shell hides the trouble and the buyer who is also the customer, never is quite sure of what he has bought until he opens the egg to eat it. If every purchaser could be assured that the shell contained a fresh egg the call for eggs would be so great that the supply would be unequal to it.

EGGS NOT USED FOR HATCHING.—Every farmer and poultryman should send to the Department of Agriculture for Bulletin 141 and placard showing relative keeping qualities of fertile and unfertile eggs. Most anyone can fix up a yard to keep the males in after hatching season, and when we take into consideration the habits of all other animals we cannot but know that the eggs will be all the better food, aside from the keeping qualities, when there are no males kept in the yards.

DISTRIBUTION. — After the farmer has done his part, the rest lies with the distributors, and these are not always in a hurry, especially if the market inclines upward, to get the eggs to the retailer. Here again, the government could help, through the pure food law, by setting a seal of discouragement on storage and low quality eggs, forcing dealers to buy and sell on quality basis only. Of course some will say the government could not be bothered with such small matters as this, but I want to know why? What is government for if not to concern itself with the health of the governed? Health is a vital question, and one that should concern the law makers of the nation.

EGG PRICES AND STATESMANSHIP. — Another thing that ought to be done is to work out a system of prices; or perhaps a better word would be a scale of prices. If quality governed it would, of course, take the highest price, and so on down, though the pity is that the poor man who really needs good wholesome food would most likely get the stale eggs. But these things will all come in time, of that I am as sure as I am that "there is something rotten in Denmark," and that was not said of eggs either, if you remember, but of things and folks in high places, and the same old story could be told today with equal truth. About a year before the postal savings bank law became a fact, I was wearing a "boost postal savings bank" button when the cashier of our local bank saw it one day, and shook his head saying, "that would not work in this country. Mrs. Swagsgood." I asked him why? "Oh," he replied, "it's too large." Well, I said, is not the Government as large as the country, and if it is not, why, we need a new one. Now I had him cornered, because no American is going to admit that the Government is not as big as the country, but my friend simply shook his head and said, "it won't do." Time has shown that it will do, though the postal savings bank, like the parcels post, is only an infant, meant to pacify the crying children, the plain people, without alarming the big men who dominate everything in this big country. The money the people turn into the postal savings banks, in-

stead of being used by the Government, is turned over to the bankers to use. Most assuredly the Government is too small for the job—it is only in pantaloons yet; when it gets into full sized pants it will spend its own money and make money on the deal; it will run a parcels post in accordance with the size of the country—not a half-way proposition that does not hit the express men at all.

A CASE IN POINT.—To show how much we need some sort of just distributors in this country, I will cite one case of interest to myself. On December the 2nd I shipped a cockerel C. O. D. to a lady in Lassen Co. The price was five dollars. Coop and cockerel weighed 20 pounds. The agent here said charges would be \$1.25. All right so far; cockerel was shipped, as before stated, on the 2nd of December; on the 6th I received a letter from the lady saying "cockerel received and he is a beauty, cost me \$7, but I am satisfied."

Now, then, here we are to the milk in the coconut. The lady paid the \$7 to Wells Fargo agent on December 4th, \$5 of which should have come to me, but this is the 24th of December, just 20 days, mind you, and my share of the \$7 has not arrived yet. I went to the agent at this end of the line and reported that the shipment had been received, but that my money had not come yet, so he wrote the agent at Hot Springs, Lassen county, to send check at once. So far it has not come. Will somebody rise and explain what interest my money is bringing?

THE CURE.—Government ownership of all public utilities is the one and only solution to this robbery. Wells Fargo and all other express companies are just as much hold-up men as the men that stop the trains and hold up the messengers, with this exception: One has the Government to back his methods and the other has

the Government against him. Another point I want to call your attention to is the difference between my value and what my customer had to pay. When the lady asked me to give express charges, she said to Placerville. I called up the Wells Fargo agent and asked for exact charges on a coop and cockerel weighing twenty pounds to that place. He said \$1.25; so I wrote her. Then she changed the shipping point to Hot Springs, and I went to the trouble of seeing the agent personally, and he said charges would be about the same, as the two places were about equal distance. Now, then, you will perhaps want to know where the balance goes. A postal money order would have cost my customer five cents—for returning five dollars C. O. D., Wells Fargo charges something like fifty cents. On this point I am not exactly sure but I know they charged a customer fifteen cents on a collection of \$1.25 last year, so I am not very much wrong, as you will see. My customer either did not have faith in my honesty or she did not have the money on hand at the time and failed to realize that she would have to pay 100 per cent for C. O. D.

RELATIONS TO EGG IMPROVEMENT.—While this seems immaterial to the improvement of the farm egg, in reality it is one of the salient features, for before people can have pure food, we must have better methods, and cheaper for distributing the food. And while the laboring man struggles to make things better by strikes, he never can, for it only works hardships on everybody concerned. Once the farmer takes it up, as a body, there will be something doing, and the rottenness will disappear from Denmark. All hail to the farmer, the hard-handed son of toil, the only free man in all the world! May his shadow never grow less, for he is the arbiter of nations.

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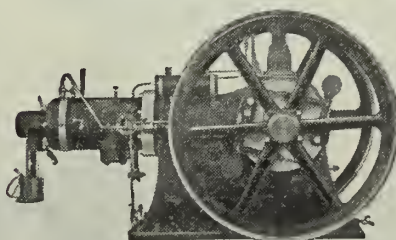
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Send for Circular.

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Strongest and simplest engine made; practically only three moving parts; nothing complicated to get out of repair.

Fill up the tanks and start it running and it will run until you stop it. Cheaper than hired men or electricity.

Every engine equipped with force feed lubricator, and many other exclusive features. Runs either way and can be reversed when running.

You don't have to take our word for it. If it does not suit you perfectly, send it back at our expense, as it is sold under a guarantee. Write now for catalogue and opinions of satisfied users.

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AVOCADOS (budded), Feljoas, Cherlmoyas, and other subtropical fruiting plants and trees. We have the largest and finest stock of budded avocados, and the best varieties. We grow only subtropical fruits of proven adaptability and sterling merit. Send for pamphlet. WEST INDIA GARDENS, Altadena, Cal.

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New Illustrated Catalogue Free. Mention this paper. Before planting see our large experimental orchard near railroad and main highway. Leonard Coates Nursery Company, Morganhill, Cal.

FELJOA—This superb new fruit is hardy all over California. Sure to be one of our great commercial fruits. Write for prices. COOLIDGE RARE PLANT GARDENS, Pasadena, Cal.

WALNUT TREES—Late varieties, grafted and budded on hybrid root—Eureka, Franquette, Mayette, Concord and Placencia. Dr. W. W. FITZGERALD, Elks Bldg., Stockton, Cal.

AGENTS WANTED—To sell orange, lemon and seedless grapefruit trees. Commissions paid on receipt of orders. Robinson Citrus Nurseries, Valley Center, Pacific Electric P. O., San Dimas, Cal.

VILLA ANNA NURSERY—Fruit and ornamental trees. Burbank standard cactus a specialty. Santa Rosa, Cal. Write for catalogue.

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Burbank Genuine Spineless Cactus our specialty. VILLA ANNA NURSERY, Santa Rosa, Cal.

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AIR-SLACKED LIME—Lime corrects soil wrongs, helps other fertilizers to do their proper work. Can I help you? H. B. Matthews, Fertilizer Chemist, 733 Merchants Exchange Bldg., San Francisco.

FIRST-CLASS ALFALFA HAY FOR SALE—Second, third and fourth cuttings. Apply to IRA A. WILLIAMS, Live Oak, Cal.

FOR SALE—12-foot windmill and 30-foot steel tower for same; all in good order; recently purchased; reason for sale, not enough wind; price right. LEONARD COATES NURSERY CO., Morganhill, Cal.

J. E. LAWRENCE, 210 Clay St., San Francisco, Broker and Commission Merchant. Handles all farm products. Ship direct or send samples.

ALFALFA SEED FOR SALE—Free from noxious seeds. Address V. A. PETERSON, Blacks, Cal.

MAKE YOUR OWN ROPE With a simple and perfect machine, saving 80 cents on every dollar you pay out for rope; 30 hatters can be made from one ball of binder twine costing 40 cents; 150 feet of hay rope can be made from three balls of twine costing \$1.25. Retail price \$4.25. Sent prepaid.

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This barley has proved itself to be a heavy yielder grown under dry land conditions, having produced as high as 90 bushels to the acre in the northern part of the State and nearly 60 bushels south of the Tehachapl. We will sell re-cleaned and bluestoned seed for \$2.00 per 100 pounds f.o.b. Alessandro. Address Estate of E. E. Hendrick, Riverside, Cal.

HOME IMPROVEMENT No. 7.

Ornamentation of the Farm Properties.

In choosing a title for this article it was thought well to employ a term that would appeal to real estate operators as well as farmers, and this with the full knowledge that men of the former class are especially wary and sophisticated when it comes to titles and descriptions. There is something about the word "properties," however that is irresistible. It combines or conveys at once a sense of permanence, domestic stability and homelikeness, with the opposite idea of rapid improvement, rapid change of ownership, rapid rise in value or at least in valuation. It is a word that calls up visions of what is lasting in the shape of concrete walks between weedy lots at one side and freshly plowed streets at the other. Then there are the solid stone pillars marking intersections of streets and a few feet away a tiny 8x10 office which Halloweeners might easily carry upon their shoulders. Thus everywhere the elements, unconsciously, no doubt, of fixedness and of change.

It is never supposed that city real estate men read farm papers to any extent, but it is the desire of the writer that the farm owner be persuaded to take for the time the real estate man's point of view in regard to ornamenting his properties, so to speak. In the case of the owner of a farm home, used as such, the idea of permanence rules. The early planting of trees for windbreak, shade or ornament is found to have been the rule in most parts of the coast. Men who care little for lawns or flowers and who fail to see their importance as a selling asset realize the value of trees and of age in trees. They get busy at once, as a general thing, when purchasing a piece of land unimproved. Thus we find our county roads fairly diversified either with bordering rows of trees chosen with more or less skill, or with what is of greater importance in a tourist's eye, groves and backgrounds of different trees at varying distances from the road and marking each a homestead, setting off the clusters of the buildings as though in so many pictures, and adding vastly to the perspective, conveying better ideas of distance and extent to say nothing of exhibiting the individual tastes of the designers and a hundred other aesthetic meanings little guessed or sought by them.

More than a year ago appeared in these columns an article by some good horticultural writer, whose name escapes me, upon the subject of tree planting along the new California State highway. It dealt with the aesthetic values above alluded to and also emphasized the value to the State from a purely commercial point of view of such ornamentation. To this article the reader is commended, as it covers the ground, and a further discussion here would lead us somewhat afield. We wish, however, to apply the same ideas, aesthetic and commercial, to the more strictly home plantings, not only of trees, but of lawns, shrubbery, vines and flowers and to develop the two-fold meanings before outlined of permanence and change involved in such work. In a future article the details and the difficulties will be dealt with, also the encouraging features of ornamental horticulture on the farm as contrasted with its pursuit in town. Of these encouraging features



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there are many, and they place ornamentation of farm properties well below the class of luxuries. A consideration first of the values, commercial and aesthetic, aside from the question of cost prepares one for this view.

Just as tree plantings impress the tourist or homeseeker with a sense of permanence, so shrubberies and flower borders suggest something of life and change. Dignity, stateliness, reserve are imparted to a pretentious farm house by the presence of mature trees adapted to this end. Vines and lawns in their effects partake of the nature of both elements. They subdue the cold exclusiveness of the house and suggest habitation, and the flower borders and informal shrubberies suggest whatever of emotion or of red blood may be expected within. It is easy to dilate without limit here, but it seems more to serve our purpose just to say that pretty, tasty, well kept surroundings representing months or years of care attract a different class of buyers for farms than those buyers who simply compute the acreage yields and the revenue therefrom.

Age in the planting conveys to many a sense of the owner's having bestowed his best care upon the premises, land included, for a considerable space of time. The place is distinctly homelike; has or seems to have traditions, human associations and a past, does not repel by its ultra newness. On the other hand, the lately mown lawn, ample in its proportions and variety, its lights and shadows, resplendent in its lack of restraint as compared with city lawns, suggests recent or

present occupation. One can probably see the owner by calling and can deal directly, not through an agent. One does not need the morning paper in the mail box at the gate nor the dog basking on the steps to tell him this.

The flowers in their riotous profusion suggest emotion, freedom, the development of the aesthetic sense and its accompanying refinements. They seem to say for their owners: "We live here," with the emphasis upon the first or the second word as happens. The arrangement of the towers will betray to a knowing eye where the accent is intended. In either case one wishes to meet the growers. It would be a safe bet that the old-fashioned sofa in the parlor is well loaded with cushions displaying the latest in embroideries, for here, peeping out from among the old Duchess roses is a climbing Kaiserina.

One is not in the least surprised to see that the well rolled walk leads beyond the house to a barn that, without vulgar "gingerbread work," is an ornament to the place. Such things go together. This man who has noticed us and who now approaches in genial fashion with his hands in his pockets, a sort of ill-disguised "I've made good" air about him, must be the owner. We need not the garrulous urchin at his elbow to inform us that "We've got a new automobile, n' she's a peach!" We quite expected that she was. Well, its plain to see this place is not for sale. "Good morning. We just stopped in to inquire if the place back here at the corner is for sale. There seemed to be nobody at home as we came by."

Treatise on Tilth.

Although we do not have in California valleys much of the advantage which the writer of the following treatise on tilth attributes to alternate freezing and thawing of the ground, his practical explanations are otherwise edifying. The writer is F. S. Harris, and the Utah Farmer gives him public contact:

In order that dry farming may be successful the soil should be in as favorable condition as possible. The soil is the store house from which the plant gets its supply of food and water. It furnishes support and can truly be called the plant's home. The condition of that home and its adaptation to the needs of the plant will determine the growth of the crop.

The soils of dry-farm areas are usually well supplied with the necessary plant food elements, so the chief concern is associated with the water supply and the physical condition of the plant home. This physical condition may be expressed by the word tilth, which is dependent upon the size of the soil particles and their arrangement or structure.

WHAT IS TILTH?—Every practical farmer is familiar with that condition of the soil known as good tilth, and he is aware of its importance in the production of profitable crops. It is to secure this tilth that he plows, discs and drags his land. He knows that the more he works the soil the better condition he puts it in. He often fails, however, to use the forces of nature in helping him do this work, since he may perform his tillage operations without regard to season of the year or condition of the soil. He makes peace with his conscience by assuring himself that his land has been giving the necessary plowing, two discings and a dragging.

The size of the soil particles cannot be altered by the farmer. All he can do is to change their arrangement. This may be accomplished by tillage, by alternate freezing and thawing, by alternate wetting and drying, by root action, by the addition of organic matter and certain chemical substances, and in a number of other ways. These methods will each be discussed in their order.

WHAT TILLAGE DOES.—Tillage changes the structure of the soil by establishing lines of weakness throughout the mass and shifting the particles on each other. It tends to increase the air space and overcome the effect of the natural compacting. The effects of the tillage, however, will depend largely upon the amount of moisture in the soil. If the land is too wet, tillage will be a detriment instead of a benefit, since it puddles the soil. A field was once plowed and one-half harrowed when the soil had just the right amount of moisture for handling. That night it rained and the next day the rest of the field was harrowed while still very wet. The two parts were planted just the same, but the crop on the portion which was worked when wet was an entire failure, while the other portion produced a fine crop. The tilth of the one had been so injured that it was a number of years before it was as good as the other. This experience has been repeated by many farmers.

How WATER ACTS.—In dry-farm regions the soil is more often handled when too dry than too wet. When dry it breaks into clods rather than crumbling into the granular structure which is so desirable.

Not only should the soil be tilled when it has the proper amount of moisture, but the season of the year makes considerable difference. Where practical, fall plowing promotes good tilth in the soil, since the forces of nature acting during the winter on the plowed land produce the desirable granulation. Thus by watching closely the moisture in the soil and

the season, one plowing at the right time can be made more effectual in giving the soil the proper tilth than two plowings at the wrong time.

The alternate freezing and thawing of the soil tends to overcome each year any mistakes of tillage the farmer may have made. All who love the soil and who observe it carefully have been struck by the mellow condition in the spring when the frost is out of the ground. This condition is produced by the ice crystals expanding on freezing and establishing lines of weakness between the soil grains. This force of nature can do the work much cheaper and more effectively than man with all his implements, and its action should therefore be promoted. This can be done by having a fair amount of moisture in the soil during the winter and by fall plowing.

Every time the soil becomes wet and then dries out there is a tendency toward granulation produced by the elastic water films around the soil particles. These films have a force which is almost inconceivable. The cracking produced in the soil when it is dried out is a manifestation of this force. A soil which is badly puddled can often be restored to good tilth simply by alternate wetting and drying. This method of ameliorating the soil, however, cannot be influenced greatly by the dry-farmer, since he must get his moisture as it comes to him from the rains of heaven.

In an experiment with cropped and uncropped soils, it was found that where the crops were grown the soil had a better tilth than where no crops were raised. This was doubtless due to the fact that the roots in making a network through the soil produced lines of weakness and promoted desirable flocculation of the soil particles. It would seem, therefore, that long periods without cropping would be detrimental to the tilth of soils, however much they might be beneficial in other respects.

MANURING.—One of the surest methods at the disposal of the farmer for improving the tilth of his soil is by the addition of organic matter. A soil which is high in organic matter is almost always in a good physical condition, while one which is low must be handled with care or it will bake, clod and do other things which accompany poor tilth. The organic matter besides its direct action has an indirect effect on the structure of the soil by helping to retain sufficient moisture to make tillage most effective.

EFFECTS OF ALKALI.—There are certain chemical substances which are damaging to the best physical conditions of the soil. The alkali found in many arid soils belong to this class. Black alkali, or sodium carbonate, is especially bad. It is almost impossible to keep a soil in good tilth which is high in black alkali. A person in selecting a dry-farm should, therefore, know that even if the alkali is not strong enough to kill his crop, it may be strong enough to interfere with the tilth of his land.

MAIN PROBLEM IN DRY-FARMING. — In dry-farming the main problem will always be the conservation of moisture. One of the best ways to do this is to keep the soil in good tilth, as its water-holding capacity is thereby increased and the evaporation from its surface diminished. Aside from moisture considerations, the yield of crops is greatly affected by the tilth of the soil, since good tilth means a favorable home for the plant, while poor tilth means a poor home.

In summarizing the conditions which bring about the proper tilth for dry-farm soil, it might be said that tillage operations should be conducted when the soil is fairly moist, but not too wet, and at the right season. Measures should be

used to promote alternate freezing and thawing, as well as wetting and drying. Organic matter should be added to the soil and alkali should be avoided.

When those who are engaged in dry-farming learn to keep their soil in good tilth the great industry will have fewer failures and many more successes.

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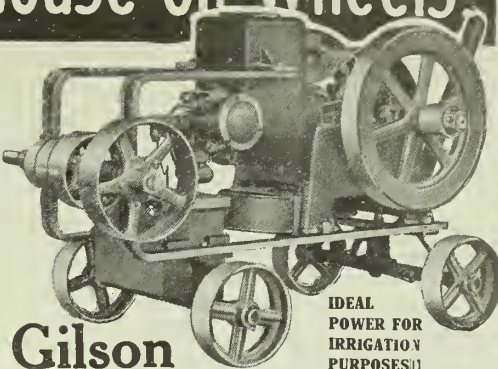
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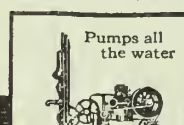
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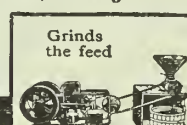
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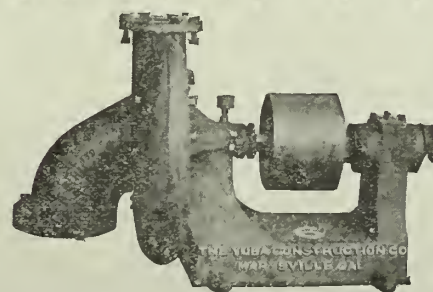
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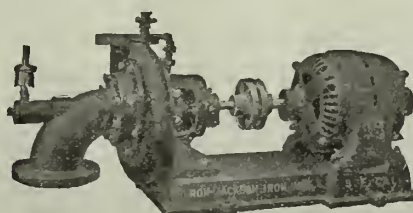
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AGRICULTURAL REVIEW.

Tips on Turkish Tobacco.

A correspondent in Tulare county who has watched closely the development of Turkish tobacco culture in that section, writes as follows: "The varieties mostly planted are Cavallo and Samson, and I am sure cannot be secured from seedsmen, as it is imported and the demand almost nil. About the first year it was planted here I secured some plants for experimental purposes, and posted myself as much as possible. A couple of years ago I visited those in charge of the experiments, the managers of the John Bollman Company of San Francisco. They told me and showed me everything they could about California grown and imported Turkish tobacco. I saw grades varying in cost in Turkey from 7c to \$1.72 per pound. To be honest, I must say the 7c leaves were better than the California grown. With a duty of 35c per pound, this 7c grade would cost 42c per pound. The reason for the price offered the California growers is, therefore, obvious. The industry is new here and largely experimental. Let no man who has not seen it grown put in an acreage without an experienced grower can be secured to handle the crop from start to finish."

Prunes Per Parcels-Post.

Quiet markets prevailed in the East during December for California dried fruits, and such business as is reported was of the hand-to-mouth description; but it is said that the scarcity of California offerings of prunes has had the effect of directing attention to the Italian variety produced in Oregon and Washington. It is confidently believed, however, that the demand for the California article will be brisk during the present month and that the growers of Santa Clara who have held on to their stock will be enabled to unload at remunerative figures. Some good advertising of California prunes has been done by the residents of San Jose and neighboring towns by sending small, attractively got up boxes of this product to friends in the East. The movement was assisted by the local papers and helped along by the Wells Fargo Express Co. with a special cheap rate. An enterprising San Diego man is also reported to have started two carloads of eight-pound packages Eastward on January 1st under the new parcels-post rule, the most for which was 96c per package. Hearing this, the express companies are said to have cut the rate on prunes to 35c for an eight-pound package for the same distance, which action may be taken as the preliminary skirmish between parcels-post and express companies.

Comments on Wine-Grape Growing.

Although the wine-grape growers in many parts of the State have had anything but a satisfactory year, this does not appear to hold good with the grape-growers of the Santa Clara valley, who are said to have realized from \$16 to \$19, and in some cases as high as \$22.50, per ton. The wine produced there is also of uniform good quality and commands a ready market at profitable prices. Commenting on the poor results in other parts of the State, a prominent grower of the Santa Clara valley attributes most of it to the poor judgment shown by many new arrivals and also some land companies who elect to try to produce a crop not suited to the soil. Much of this is due to ignorance, but such mistakes could easily be avoided by consulting a soil and agricultural expert. It would be difficult to estimate the saving this small preliminary outlay might effect. Not that Santa Clara vineyardists have not had their troubles. Disease had attacked the vines, and resistant vines had to be sub-

stituted, with the attendant loss of years of producing activity. In conclusion, it must never be forgotten that the quality of the grapes and wine produced has all to do with establishing the prices which are offered the growers.

Raisin Reports.

The final figures on the raisin crop would appear to knock out all the early season estimates of a short crop, the latest returns giving 85,000 tons as against 70,000 tons for 1911. Eastern shipments out of the San Joaquin valley for the months of October and November are reported to have reached the immense total of 55,000 tons. These, added to the December shipments, are expected to bring the grand total to not less than 65,000 tons. These phenomenally heavy shipments will mean the smallest holdover for the new year in the history of the industry and augurs well for good markets for next season's crop. Growers are reported to be readily responding to the efforts of the newly organized California Associated Raisin Co. Manager Madison is more than pleased with the number of contracts coming in for his signature and expresses his belief that there will be little difficulty in obtaining contracts for at least 60% of the crop. On the other hand, packers are now showing activity in making contracts, one firm having already signed for approximately 1,000 tons of Thompsons, the terms being 4c for a one-year agreement, and on a three-year contract 4c for the first year and 3½c for the other two.

Live Stock and Dairy.

The Parrott ranch near Chico received 20 Holstein bulls from the East last Saturday.

Last week the Bullard Bros. of Woodland, supplied two Merino ewes and one ram to fill an order for Guatemala.

Two Montanas, L. G. Foster and C. J. Nelson, after looking over this State for a favorable point to start a dairying business, purchased 50 acres near Hughson, Stanislaus county, and are now engaged in erecting suitable modern buildings.

Reports from the stock-producing sections of southern Santa Clara and northern San Benito counties indicate that, while the cattle so far have suffered no great hardship, a generous rain at this time would be a great blessing.

F. P. Shellabarger, of Hanford, last week sold a span of fine black mares of his own raising to a farmer at Alpaugh, receiving \$540 for the team. The animals were well matched and weighed 1,500 lbs. each.

The annual report of the Salinas Creamery Co. showed the concern to be in a flourishing condition, having enjoyed a prosperous year's business. All the old officers were re-elected.

W. M. Carruthers, during the week, sold the entire herd of Short-horn grade stock owned by H. Taubner-Goethe of Rutherford, Napa county, to the hay and grain firm of Scott, Magner & Miller, of San Francisco.

John Yore, of Yuba county, sold a carload of beef cattle to a party at Vina, Tehama county, which averaged \$90.07 per head, said to be the highest price reached by beef cattle in northern California.

Lima Bean Men Reorganize.

The Lima Bean Growers' Association, which has been one of the most successful and profitable growers' organizations in California, has gone out of existence, to reorganize as a purely co-operative concern. Before this association was organized the lima bean market for years had been in a bad condition and prices were little more than enough to balance

This Tree is just as good a Fruit Tree as that one

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it is being starved to death for want of nourishment. The soil around its roots is worn out—it needs a fertilizer.

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the cost of production. The association, without increasing a particle the cost to the consumer, got for the producer legitimate profits. It was, however, organized on a basis that left it open to attack under the anti-trust laws. Under the new method it will be entirely co-operative and should be fully as effective, if not more so, than under the old method.

Charges Restraint of Trade.

Russ D. Stephens, of Sacramento, made a plea before the California Railroad Commission urging that body to join the shippers in protesting to the Interstate Commerce Commission against existing freight and refrigerating rates on fruits. The increase of the minimum from 24,000 to 26,000 pounds per car in 1911 was bitterly attacked on the ground that shippers had to pile the fruit higher, the contention being that the atmosphere at the top of the car was bad. Stephens said the high minimum was practically a restraint of trade, as the fruit reached the East in such poor condition that a loss resulted to the producer. The Commission told him that if there was anything approaching restraint of trade, the growers should lay their grievance before the United States Attorney General.

Mills Cleans Up.

Earl Mills, County Horticultural Commissioner of Butte county, has just made a thorough clean-up of the orange and olive trees on the streets and in the yards of the residences of Chico, by treating them with a systematic course of fumigation and spraying, and he will have the fumigation outfits moved to Oroville at once, where the trees of that town will receive similar treatment.

Livermore Poultry Show.

Livermore, Alameda county, will hold a poultry show the latter part of this month, the entries closing January 14th. The plan followed last year of awarding cash prizes proved very satisfactory and will be the rule again. First, second, and third prize winners will be awarded 40,

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20, and 10%, respectively, of the total entrance fees in each variety, and a grand prize of \$100 will be the award for the best display, besides \$100 for the grand championship. H. P. Schwab, who for the past seven years has judged the Madison Square show in New York, will judge

all varieties at Livermore. R. H. McGuire, Livermore, is secretary. Only pens consisting of one male and four females can be entered, and the entrance fee is \$10 per pen.

Lindsay's Orange Shipments.

The total number of cars of oranges

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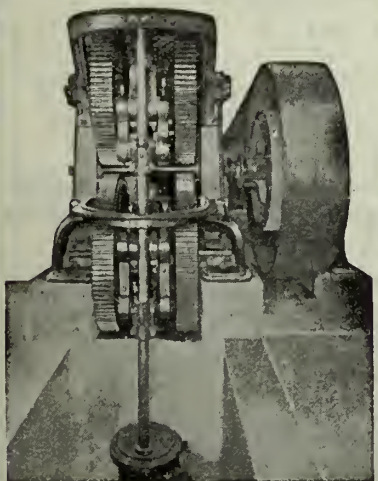
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shipped from Lindsay, Tulare county, during the year just closed was 1285, as against 1840 for the year 1911, a decrease of 555 cars.

A Weighty Resolution.

The Santa Rosa Grange, at a meeting held last Saturday, adopted the following resolution:

"Resolved, That Santa Rosa Grange No. 17 respectfully requests our legislators to enact laws, at the earliest possible date, making it the only lawful way to market farm produce by weight; that no eggs shall be sold by the dozen, and no hay by the bale; no fruit by the box; but all products, of whatever kind, shall be sold by weight and quality only."

Will Cease Dealing in Figures.

As a result of the suit filed recently by the Government against the "butter trust" in Chicago, the Los Angeles Produce Exchange voted to discontinue quoting and fixing prices on butter and eggs, and after January 6th the butter and egg committee of the Exchange will cease issuing quotations. The Government accuses the "trust" of holding 60,000 tons of butter in storage, allowing just enough to be withdrawn to keep the market short and thus keeping the price 10c per pound above what it should be were the market uncontrolled.

Want Citrus Experiment Station.

The establishment of a citrus experiment station in central California will again be made the subject of a petition to the State Legislature, and will also include a request for the establishment of a chair of citrus culture at the Agricultural College. This question was taken up some two years ago, but was abandoned when it was learned the University had no funds to make the extensions. Strong efforts will be made by the East Side towns in Tulare county to have the experiment station located near Porterville, in case the University appropriations for this work are favorably received by the Legislature.

Persistent Prune Planting.

Fruit tree planting in Sonoma county this season will, it is said, surpass any previous season. Last week alone, 20,000 trees were received at Healdsburg, Oregon supplying a good part of the stock. Prunes are most in demand. The same conditions prevail in Butte county, where the deputy horticultural commissioner estimates that between 60,000 and 70,000 prune trees will be set out in the Chico and Durham sections in the spring; but the demand for both prune and almond nursery stock far exceeds the local supply.

Pacific Coast Nursery Stock Recommended.

Edward O. Amundsen, County Horticultural Commissioner of San Diego county, advises the fruit-growers that just as good stock can be procured in the Pacific Coast States as from the Eastern or Southern States, and that it is less apt to be infected. His remarks were prompted by the recent arrival of a case containing 75

Big Seed CATALOGUE (A GARDEN MANUAL) FREE

160 pages full of valuable information with 350 illustrations. This manual tells you what to plant, when and how to plant it. Write or phone for it now.

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trees from Beatrice, Neb., out of which eleven peach and one plum showed unmistakable evidence of the peach-root borer, and an apple tree was effected with root-knot.

FOREST OWNERS PLAN CONSERVATION.

With a capitalization of \$5,000,000, the Lumberman's Timber Company has been formed in San Francisco to take over the timber holdings of B. F. Murphy and several other lumbermen, and to inaugurate a reforestation plan in the dealing with its 400,000 acres of timber lands in the state, so that the amount of standing timber will remain nearly constant. The scheme shows how the education of the old style lumberman, who cut everything standing, has advanced, so that he now uses scientific methods and possesses an appreciation of the values that timber will have in twenty or forty years from now.

Outside of the government reserves, with the trained foresters, where stumps are sold and the mature trees marked for cutting, this company in San Francisco plans one of the most scientific handling of forests.

Richard Shaw was elected temporary president of the company. Permanent officers will be chosen within a few weeks when the eastern capitalists who are back of the company will be in California for the formation of the holding company.

The deal has been promoted by B. F. Murphy, who has been in the lumber business for many years, but his holdings are not the largest of any single owner who is selling to this new company. At the present time the company has acquired 100,000 acres with a stand of 3,339,000,000 feet of pine, fir and redwood. The plans call for the acquiring of 400,000 acres within a short time, which is estimated to have a stand of 10,000,000,000.

No lumbering will be done by this company. Stumpage only will be sold to the mills at prices based on the schedule arranged by the United States forest service. The largest cut estimated for any one year is that of 1918 of 25 per cent of the stand, which will give the company approximately \$666,000. After 1923 but one and one-half per cent of the stand will be cut annually and this amount is estimated to yield a return of \$471,000. The estimated stand of 10,000,000,000 feet which has been ascertained by careful cruising is divided into three-fifths fir, one-fifth pine and one-fifth redwood.

SOURING FIGS.

To the Editor: I am in a quandary just now and must appeal to your wider observation for help. I have been planning to set several acres to figs, either Calimyrna or Adriatic, but am not sure yet which would be most profitable, as Calimyrna sours so badly here. Reading of hundreds of acres already being set, are we in danger of overdoing the business, think you?—R. K. Orosi.

This has been a bad year for souring figs owing to early rains. If souring is your only trouble would say by all means plant Calimyrnas, or Smyrnas, another name for the same thing. The Adriatic sours worse as a rule than the other. Sour figs may often be sold at reduced price to the Mediterranean peoples in our cities.

It is nearly a stand-off in popularity between White Adriatics and Calimyrnas in most fig districts. The balance is all in favor of the Calimyrnas except that caprifying is very often only partially successful and the yields are poor, but enough persons are very successful with caprifying to show that good yields can be secured. We would say that there was not the slightest danger of overproduction provided growers could look after the marketing and distribution.—D. J. W.

TREES

ALL VARIETIES EVERY TREE—A TREE.

You can safely trust your orders to us for citrus and deciduous trees, plants, vines, etc.—no matter what the size of your order, small or large. Our many years of experience and the ideal locations of our immune nurseries enables us to grow the finest stock obtainable anywhere. We guarantee all stock sold to be true to name.



If your land is all planted to other crops—why not put in a border of figs? The Calimyrna Fig is the genuine Smyrna fig of commerce introduced and successfully grown by us.

Figs are never failing, sure bearers—require little care, and are good profit makers.

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We can supply your wants complete—apples, apricots, almonds, olives, plums, pears, peaches, lemons, oranges, pomegranates, etc.



If you figure on planting anything in the way of ornamentals it will pay you to get in touch with us. We have a magnificent assortment of hardy field-grown roses, evergreens, palms, cypress, etc., etc.

Send us your list for prices and suggestions.

Our Book—"California Horticulture"—the fruit growers' guide, should be in the hands of every planter. 120 pages. Beautifully illustrated. Gives instructions for planting, pruning, etc. Sent postpaid for 25c in coin or stamps. Write for it today.

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The Home Circle.

The Rose Garden.

The home gardener should get her roses in shape this month — trimmed, transplanted and sprayed, ready for the bursting of the buds in February. On the Coast there is little dormancy in these plants and one must take advantage of the short period before the sap again flows freely.

Roses should be well pruned to ensure large perfect blooms. Those of less prolific growth like the hybrid perpetuals and moss roses require less pruning; the same with the climbers whose beauty is more in their wealth of foliage and blossoms than in the size of the latter. But all should be thinned and any dead wood or diseased branches cut away. This holds good with the roots in transplanting; all rooted, broken and diseased portions of the old root should be removed and the rootlets cleaned by standing the plant in a bucket of water; then set at once in the place prepared for it with the healthy young feeders spread out in the mellow soil; hold the stem straight and firm and fill in with good earth free from clods and trash; then water and press the soil firmly about the plant and stake the latter securely so that the winds and rains cannot work it loose. Roses require a rich, heavy soil, but well drained. Use only old and well rotted manure as fertilizer. Roses love the full sunshine, always plant them where they will get the unobstructed sunshine at least half the day.

It is a good plan to spray the plants now as it will save work later on. Where mildew or rust has affected them in the past season the Bordeaux mixture is excellent. Formulas for all the spraying mixtures may be found in free seed catalogues. Some of the ready-to-hand remedies are powdered sulphur or a solution of sulphide of potassium for mildew, and strong soapsuds or tobacco for aphids or green lice. Tobacco may be used as a powder, a solution or to fumigate with the smoke.

For the ordinary garden it is better to cultivate the well established and hardy varieties. The La France is one of the most lovely of pink varieties and at the same time very hardy and a free bloomer. Another standard rose is the Gen. Jacqueminot which is without an equal in the richness of its velvety crimson. The Bride is one of the standard white tea roses; the La Marque is a thrifty climber while the Marshal Niel is one of the most beautiful of yellow roses as well as of the climbers, but not as hardy as the La Marque. Then there are the common varieties, first among which is the old reliable cabbage or Provence rose which for true rose fragrance cannot be excelled.

In planting roses the hedge, border and trellis effects are most beautiful. A climber supported by a pillar or a single arched trellis is a charming sight. The rose naturally forms itself into festoons and throws out wreaths of airy tendrils and sprays of fairy-like blossoms. We remember the wild roses which used to grow on the edge of the rich bottomlands of "Egypt" in Southern Illinois. They were like trees at their roots and they climbed the tallest forest growths and threw themselves across from tree to tree forming the most wonderful archways in festoons of airy sprays and dazzling colors.

To the home gardener and home maker we would say plant more roses this season, and still more roses. The money spent for them is not wasted but goes on multiplying in value and fulfilling the Mission of the Beautiful. The sight of blooming roses delights all beholders but to get the full measure of delight one must

work among them. In the cultivation of roses there is culture for us as well as health and pleasure; we become as it were students of the beautiful. For the soul of beauty is enfolded in the rose's petals and enchantment is wafted on her fragrance. The rose garden is not only the "Garden of Delight" as one florist has happily named it, but it is also the Garden of Enchantment.—M. R. JAMES.

The Pants Ma Made.

Professor Stearns of the Business Farmer of El Paso gives his readers the enjoyment of a long lecture which he gave Mrs. Stearns about the deliciousness of the home-made pork sausages which his Ma used to make and then frankly confesses how Mrs. Stearns evened up with him:

Well I told Mrs. Stearns about those sausages Ma used to make and as much as told her I wished she would make something like Ma used to and she smiled (gee), and said she would some day.

Well sir, one day when I came home she just threw her arms around my neck and told me that she had made me something "just like Ma made it." Gee I felt fine and gave her \$5.00 before I asked her what it was.

Then she brought out a pair of pants she had made "Just Like Ma Used To." She took my old pants and laid them on top of the new cloth and cut around them to get the fit, as she could not have me lie down on the cloth to measure around me, because it would spoil the surprise.

Well sir, I put on those pants, just had to for they were "made like Ma made them." I put them on to please Mrs. Stearns and she told me to go up town and get some groceries. I met Billy Smith and he took a good look at them and then asked me how I could tell which way I was going, for the bay window and the basement expansion had the same fullness.

Charley Jones got a front view and wanted to know if Mrs. Stearns used a circular saw to cut the leg pattern with. Mrs. Jones was on to the scheme because she helped Mrs. Stearns to make them. She said they looked real cute for I could sit down going either way and not miss them.

Well by ginks I had to take the nails out my galluses and adjust them all over and the blamed pockets were sewed on in front and behind just like apron pockets. Mrs. Stearns said I looked for all the world just like the first time she saw me, when I had on pants Ma made.

The double basement back and front sure did bulge out. I tried to crawl through the barbed wire fence to drive our pigs out of the neighbor's garden and by gracious there I hung for there was so much slack fore and aft that I just naturally caught and after I got out they looked at if they had gone through Grandpa's corn shredder. So when I got back to the house I showed Mrs. Stearns how I had fixed them, just like I often did the ones Ma made. So she says, "well take them off its my turn to do just as Ma did" and so she put on the big round patches.

Well anyway Ma's pork sausages was fine and if your Ma had a different way please let me know so I can tell all the folks, but I bet she didn't, anyway she could not beat Grandma's sausages.

Punishing Food Frauds in the Olden Time.

The milkman who waters his milk and the grocer who adulterates his butter are not, after all the products of our modern civilization. These gentlemen, it appears, have an ancestry, if one may use the word, of a respectable antiquity. Witness an edict which an antiquary has discovered in the archives of Pny-de-Dome, France, in which the punishments were assigned to fit the crime. Thus, "whosoever shall have

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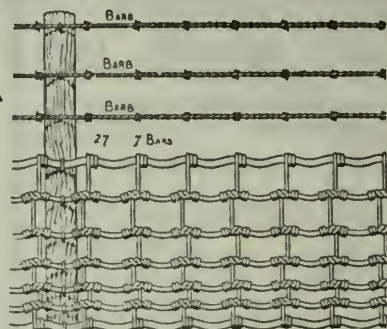
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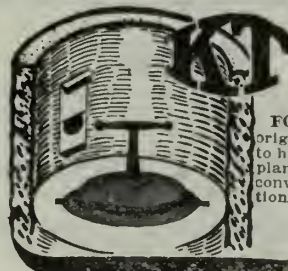
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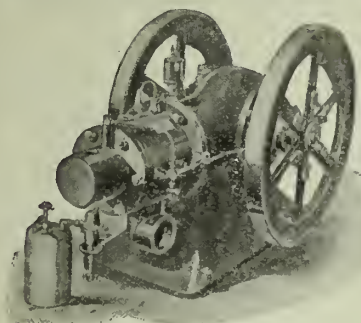
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sold watered milk, in his mouth shall be set a tube, and into the said tube shall be poured the watered milk till the doctor or barber there present shall assert that the culprit cannot swallow more without being put in danger of his days. Whosoever shall have sold butter containing turnips, stones or any other foreign substance shall be seized and attached in a very curious manner to our pillory Pontet."

One would like to know what the "very curious manner" was.

Then the said butter shall be placed on his head till the sun shall have melted it completely; and in the meantime the children and meaner folk of the villages shall insult him with such outrageous epithets as shall please them—subject to the respect of God and His Majesty. Whosoever shall have sold evil or rotten eggs shall be seized by the body and exposed in our pillory Pontet. The said eggs shall be given to the children of the villages, who shall by way of joyful diversion, throw them in the face of the culprit, so that all may be full of merriment and laughter.

Something Like a Run.

"Talkin' about runnin'," remarked the Hon. Ananias Munchausen, "about the finest bit of sprintin' I ever saw was up in Scotland the shootin' season before last. I'd been out all day deer-shootin', and had most awful luck when I spied a whoppin' great buck about eighteen hundred yards away. Takin' a careful sight, I let fly. But, bless your soul, the instant my bullet touched him, and before it had time to penetrate his hide, that beast was off like a flash.

"I never saw two such evenly matched things as that deer and my bullet. For over half a mile they sped on together, neither gaining' on the other, the bullet just managing' to keep in touch with the deer's skin. At the end of a mile, however, the pace began to tell on the deer, and he faltered just for a moment. 'Twas fatal. The bullet sped on, and the poor beast keeled over. He deserved his freedom if ever an animal did. He'd have got it, too, if he could have stuck out for another twenty yards, for that's about as far as my rifle carries."

A Family Windfall.

Father had the rheumatism, uncle had the gout, baby had the measles and his skin was popping out; sister had the whooping cough, brother had the croup, and grandma had sciatica from sitting on the stoop.

Then there came a catalogue describing all our ills, guaranteed to cure 'em with a certain kind of pills. So the family sent for some, and when they came they took and dosed themselves three times a day, according to the book.

Two days later father jumped as limber as a mouse; uncle kicked a cannonball over Johnson's house! Baby's measles went away, and sister stopped her cough, while grandma felt so fine that she took all her flannels off!

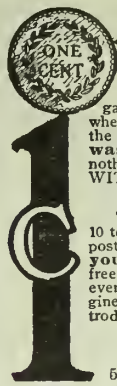
Now we're never sick at all, or anything like that—all the fat folks getting thin and thin folks getting fat. All our appetites are good—we eat like cannibals, and make a family living writing test-i-mon-i-als!

"This account from your dressmaker is really too high," observed the millionaire to his daughter. "Six hundred and fifty pounds is surely a heavy price for a motoring-coat?"

"But father, the coat itself really is quite inexpensive," replied the young lady. "Most of the bill is for trimmings."

"Trimming's?"

"Yes; I gave six hundred pounds for a motor-car to match the coat."



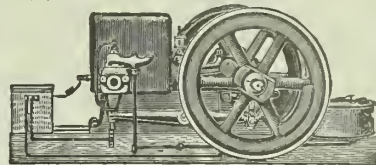
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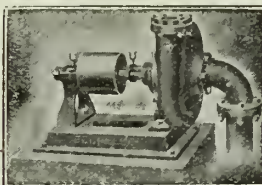
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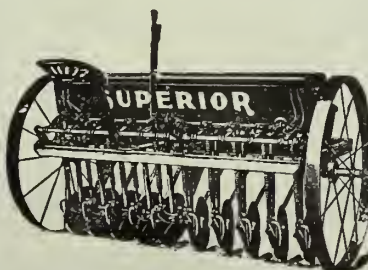
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THE MARKETS.

San Francisco, Dec. 31, 1912.

(Unless otherwise noted, quotations represent prices paid to the growers.)

Cereals.

WHEAT.

Prices in the local market are back to the old level, and there is a feeling of firmness in sympathy with the Eastern situation. The Northern market has been more active than usual during the holidays, with considerable buying by large interests.

California Club	.....\$1.50	@1.52 ¹ / ₂
Sonora	.....	Nominal
White Australian	.....	Nominal
Northern Club	.....1.50	@1.52 ¹ / ₂
Northern Bluestem	.....1.57 ¹ / ₂	@1.60
Northern Red	.....1.57 ¹ / ₂	@1.60

BARLEY.

Prices are largely nominal in the absence of trading, and there is considerable uncertainty as to values, though the market will probably settle down on a definite basis within another week.

Brewing and Shipping	...\$1.55	@1.60
Choice Feed, per ctl.	.....1.40	@1.45
Common Feed	.....	Nominal

OATS.

Business continues quiet in all lines, and while the showers this week tended to strengthen the views of holders, it was impossible to get any advance in prices.

Red Feed	.....\$1.85	@1.90
Seed	.....2.00	@2.10
Gray	.....	Nominal
White	.....1.60	@1.65
Black Seed	.....2.20	@2.35

CORN.

The Eastern market continues to sag, and offers have been made to ship at considerably lower prices. Some local dealers, however, have a good deal of stock on hand, and are reluctant to reduce their prices. Egyptian and Kaffir corn move fairly well in the country, but find little demand here.

Cal. Yellow	.....	Nominal
Eastern Yellow	.....\$1.50	@1.55
Eastern White	.....	Nominal
Kaffir	.....1.50	@1.55
Egyptian	.....	1.70

RYE.

There is nothing new in this grain, offerings being ample for the usual light demand in the local market, while prices show no change.

Rye, per ctl.\$1.45	@1.50
---------------	-------------	-------

BEANS.

The bean market still shows the effect of holiday conditions, and no trading of any consequence is expected for the next two weeks. At present there is not enough business to establish very definite values, and it is impossible to tell what changes may develop when the spring movement begins. The colored descriptions at the moment show more firmness than anything else. The dissolution of the Lima Bean Association has had no effect on the market aside from a tendency on the part of buyers to hold off for the time being.

(Prices on wharf, San Francisco.)

Bayos, per ctl.	.....\$3.15	@3.30
Blackeyes	.....3.00	@3.15
Cranberry Beans	.....4.10	@4.25
Horse Beans	.....2.25	@2.35
Small Whites	.....4.40	@4.50
Large Whites	.....3.85	@4.00
Limas	.....	5.60
Pea	.....	Nominal
Pink	.....3.25	@3.40
Red Kidneys	.....3.75	@4.00
Mexican Red	.....3.90	@4.00

SEEDS.

The comparatively light rainfall so far has prevented the usual activity in alfalfa and some other varieties, and all lines are quiet at present. Prices stand nominally as before.

Alfalfa	.....16	@17 c
Broomcorn seed, per ton	.....\$29.00	@30.00
Brown Mustard, per lb.	.....	3 ³ / ₄ c
Cenary	.....4	@4 ¹ / ₂ c
Hemp	.....3 ¹ / ₂	@4 c
Millet	.....2 ³ / ₄	@3 c
Timothy	.....	Nominal
Yellow Mustard	.....	Nominal

FLOUR.

Some shipping business is coming out, but the local trade is confined to rather narrow limits, prices being steady as formerly quoted.

Cal. Family Extras	.....\$5.50	@5.80
Bakers' Extras	.....4.60	@5.20
Superfine	.....	4.00
Oregon and Washington	.....	4.90

Hay and Feedstuffs.

HAY.

Arrivals have been rather light during the holidays, but as the demand also was limited, the local market is rather easy than otherwise. So far, however, general conditions have been favorable to increasing firmness. This week's rain has been too light for much benefit, and the north winds for some time previous have caused a general reluctance to sell on the part of holders in the country. The shortage is said to be serious in some parts of the country, with extreme prices and light supplies. Orders for shipment from this market to the interior are increasing, and unless a heavy rain occurs very soon dealers look for higher prices.

No. 1 Wheat, or Wheat and Oat	.....\$18.00	@20.50
do No. 2	.....16.00	@18.00
Lower grades	.....10.00	@13.00
Tame Oats	.....15.00	@20.00
Wild Oats	.....14.00	@16.50
Alfalfa	.....10.00	@13.00
Stock Hay	.....8.00	@9.50
Straw, per bale	.....	60 @ 70c

FEEDSTUFFS.

Several lines of feed show a downward tendency in values, and lower prices are quoted this week on both bran and cracked corn. The situation in rolled barley is uncertain, but some change is expected within another week.

Alfalfa Meal, per ton	.....\$18.50	@19.00
Bran, per ton	.....24.00	@25.00
Oil-cake Meal	.....40.00	@41.00
Cocoanut Cake or Meal	.....	Nominal
Cracked Corn	.....38.00	@39.00
Middlings	.....35.00	@37.00
Rolls Barley	.....29.00	@30.00
Rolls Oats	.....38.00	@39.00
Shorts	.....29.00	@30.00

Garden Truck.

VEGETABLES.

The market is still overloaded with onions, and prices are somewhat lower. Arrivals of southern vegetables are irregular, and prices show a corresponding fluctuation from day to day, though at present there is a general feeling of firmness, the large offerings of ordinary stock having been well cleaned up. Tomatoes are moving off fairly well, and Mexican stock, in boxes, which has been offered for the last few days, sells up to \$1.65. Cucumbers also show a sharp advance. Good string beans are in strong demand at the top figure, and ordinary lots, though still slow to move, are firmer than last week. Peas also are higher, with a lively demand for the best offerings. Eggplant is higher and summer squash moves off readily at full prices. All lines of local winter vegetables are fairly plentiful, but steady at the old prices.

Onions—		
Yellow, ctl	.....40 @	50c
Garlic, per lb.	.....2 @	3c
Tomatoes, per crate	.....75c @	\$1.00
Cucumbers, Southern, per box	.....1.75 @	2.00
Cabbage, per ctl.	.....	50c
Carrots, per sack	.....	50c
Cauliflower, per doz.	.....50 @	60c
Green Peas, lb.	.....5 @	11c
String Beans, lb.	.....6 @	20c
Summer Squash, Southern, bx	.....1.50 @	1.75
Eggplant, lb.	.....5 @	6c
Celery, crate	.....75c @	1.00
Rhubarb, lb.	.....3 @	3c
Artichokes, doz.	.....75c @	1.25
Mushrooms, lb.	.....25 @	40c
Sprouts, lb.	.....2 @	3c

POTATOES.

The former depression still continues, with heavy supplies and only a fair demand in the local trade. Ordinary Salinas stock is lower, though some extra fine repicked lots might bring an advance.

River Whites, ctl.	.....30 @	60c
Salinas, ctl.	.....\$1.00 @	1.20
Oregon, ctl.	.....80 @	85c
Sweet Potatoes	.....1.80 @	2.00

Dairy Produce.

POULTRY.

Offerings of chickens, both from Eastern and nearby points, are still moderate, and prices are well maintained in all lines, small broilers and fryers being higher. Offerings of dressed turkeys for Christmas were very closely cleaned up

at satisfactory prices, and while arrivals the first of this week were rather large for the New Year trade, the market is in very fair condition with prices at the same level as a week ago.

Large Broilers, per lb.	.....22 c
Small Broilers, per lb.	.....24 c
Fryers, per lb.	.....18 @20 c
Hens, extra, per lb.	.....16 @17 c
Hens, large, per lb.	.....16 @17 c
Small Hens, per lb.	.....15 @16 c
Old Roosters, per lb.	.....9 @10 c
Young Roosters	.....17 @18 c
Squabs, per doz.	.....2.50 @ 3.00
Geese, per pair	.....1.50 @ 2.00
Ducks, doz.	.....4.00 @ 6.00
Turkeys, live, old, per lb.	.....20 c
do young	.....20 c
do dressed	.....24 @25 c

BUTTER.

Extras are slightly lower than a week ago, but firm as quoted, and there has been little fluctuation. Firsts are slightly higher.

	Thu.	Fri.	Sat.	Mon.	Tu.	Wed.
Extras	...34	34	34	33 ¹ / ₂	33 ¹ / ₂	—
Prime	...	...	...	...	...	...
Firsts	...32	32	32	32	32	—
Firsts	...31	31 ¹ / ₂	31 ¹ / ₂	31 ¹ / ₂	31 ¹ / ₂	—

EGGS.

Arrivals have been comparatively light during the holiday season, and prices on fresh stock have been well maintained, though a rather sudden drop occurred after the holiday requirements had been filled. Storage stock is still pressed for sale at low and irregular prices.

	Thu.	Fri.	Sat.	Mon.	Tu.	Wed.
Extras	...32 ¹ / ₂	33 ¹ / ₂	34 ¹ / ₂	34 ¹ / ₂	30 ¹ / ₂	—
Firsts	...27	27	27	27	27	—
Selected	...	...	...	...	...	...
Pullets	...26 ¹ / ₂	28	28	28 ¹ / ₂	26	—

CHEESE.

The first grade of flats is ¹/₂ c lower, but other lines are fairly steady at the former prices.

Fancy California Flats, per lb.	.....14 ¹ / ₂ c
Firsts	.....13 c
New Young Americas, fancy	.....17 c
Monterey or Jack Cheese	.....20 @21 c

Deciduous Fruits.

Cranberries are steadily held at the old prices, but find less demand than for the last few weeks. Arrivals of strawberries are light, and those that come in are generally neglected, being mostly in unattractive condition. Apples are about the only item on the list to move in any quantity, though a few grapes, about the last of the season, are finding a fair demand at the old prices. Supplies of apples are still excessive, and while the different varieties show some variation in price, the general range of values has not changed. There is not much outside demand, and local buyers are providing only for immediate needs. Only a few of the finest red varieties will bring over \$1, and for 4 tier Bellefleurs and Newtown Pippins \$1 is the top price.

Cranberries, bbl.	.....\$12.50 @ 13.50
Apples: Fancy Red, box	.....75c @ 1.25
Red Pears	.....40 @ 60c
Bellefleur	.....65c @ 1.00
Newtown Pippins	.....50c @ 1.00
Greenings	.....50 @ 75c
Common	.....35 @ 60c
Pears: Winter Nells	.....1.00 @ 1.50
Others varieties	.....50c @ 1.00
Grapes, per crate	.....85c @ 1.00
Pomegranates, box	.....1.00 @ 1.25
Persimmons, box	.....75c @ 1.25

Dried Fruits.

There is nothing new in values, as trading is about at a standstill owing to the holiday and inventory season. The future will, of course, be uncertain until more is known of the extent of stocks held by the trade after the holidays, and no change is expected until orders begin to come in for the spring trade, though the general tendency appears to be upward. The New York Journal of Commerce says:

"The demand for spot goods from local distributing trade is light, and few, if any, orders are being put up to the Coast. Prices on most of the Coast products are firm, and no material changes are reported on spot or forward shipment goods. In California prunes the market remains firm on a 3¹/₄ c f. o. b. four-size bulk basis, with a 1 to 1¹/₂ c premium on 40s, as to seller and assortment. No California 30s are offered. The spot market for California prunes, while seasonably quiet, is steady. There is no demand for spot or future apricots or peaches now, but offerings are light and the firm tone of the

market is maintained. Raisins are dull and unchanged."

(New crop.)

Evap. Apples, per lb.	.....4 ¹ / ₂ @ 5 c
Apricots	.....9 @10 c
Figs: White	.....4 ¹ / ₂ c
Black	.....3 c
Calimyrna	.....4 @ 5 c
Prunes: 4-size basis	.....3 @ 3 ¹ / ₂ c
(Premium: 1c for 40s-50s; 2c for 30s-40s.)	
Peaches	.....4 ¹ / ₂ @ 4 ¹ / ₂ c
Pears	.....4 @ 7 c
Raisins—	
Loose Muscatels in sweatbox	.....2 ¹ / ₄ @ 2 ¹ / ₂ c
Thompson's Seedless	.....4 ¹ / ₂ c
Seedless Sultanas	.....3 @ 3 ¹ / ₂ c

Citrus Fruits.

Very light shipments of oranges are being made from California at this time. The holiday rush being over, the shippers are waiting for the market to right itself. Considerable poor fruit is reported at the Eastern auctions, coming principally from Florida. Fruit from that State is reported to be affected with water-rot, thus throwing lots of poor stuff in the way of good fruit.

The Riverside Press published its annual crop estimate last week, and it is probably the best guess that can be had of the California crop for the season at this time. This estimate gives 36,600 cars of oranges and 8,000 cars of lemons from southern California, and 3,250 cars of oranges and 300 cars of lemons from north of the Tehachapi. Thus making a total crop for the State of 47,850 cars of citrus fruit for the 1912-13 season.

Oranges, and in fact all citrus fruits, have been arriving very freely in the San Francisco market, and the liberal stocks have tended to hold buying for trade requirements down to immediate needs. The consuming demand, however, is keeping up fairly well, and no further change is noted in prices.

Oranges, per box—

Navel:	\$1.00 @ 2.75
Tangerines	.....75c @ 1.25
Grapefruit, seedless	.....2.00 @ 2.75
Lemons: Fancy	.....4.50 @ 5.50
Choice	.....3.00 @ 4.00
Standard	.....2.00 @ 3.00
Limes	.....4.50 @ 5.00

Nuts, Honey, Hops, Etc.

NUTS.

With the holiday business over, the market is now rather dull. Everything is firmly held, however, with limited stocks, and desirable offerings could probably be moved at full prices. As there is nothing new in growers' hands, the prices quoted are those current in the local trade.

Almonds—

Nonpareils	.....17 ¹ / ₂ c
1 X L	.....16 ¹ / ₂ c
Ne Plus Ultra	.....15 ¹ / ₂ c
Drakes	.....12 ¹ / ₂ c
Languedoc	.....11 ¹ / ₂ c
Hardshells	.....8 c
Walnuts, 1912 crop—	
Softshell No. 1	.....16 @16 ¹ / ₂ c
Hardshell No. 1	.....15 @15 ¹ / ₂ c
No. 2	.....10 ¹ / ₂ c
Budded	.....17 c

HONEY.

The movement at present is light, and no large movement is expected for the next few weeks. Offerings are ample for current needs, and prices show no change.

Comb, white	.....12 ¹ / ₂ @14 ¹ / ₂ c
Amber	.....10 @12 c
Dark	.....9 @10 c
Extracted, white (new)	.....8 @ 9 c
Amber	.....6 @ 6 ¹ / ₂ c
Off Grades	.....5 @ 6 c

BEEWAX.

There has been no large movement for some time, as the local demand is limited, and there is no great inquiry from other quarters.

Light	.....29 @30 c
Dark	.....25 @26 c

HOPS.

Owing to the holiday season, business is less active than for some time past, though the situation is fairly strong and prices are firmly held at the former level. The crop is fairly well cleaned up in most parts of the country.

1912 crop10 @18 c
-----------	---------------

WOOL.

The market remains quiet, the situation in manufacturing centers being un-

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worth of any of our properties in the
beautiful Mount Diablo Country, on the
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certain. Little of the fall clip remains
in the country, and nothing of much in-
terest is likely to develop until the spring
shearing starts.

Fall Clip:

Northern and free Mendo-
cino12 @14 c
Lambs9 @13 c
San Joaquin and Southern. 6 @10 c
Mohair15 @28 c

HORSES.

Only a few small lots have been placed
on the local market this week, and as
attention has been largely diverted from
business by holiday activities, buyers have
not shown much interest. There is a
very fair demand for first-class horses,
however, and more activity is expected
within the next few weeks.

Heavy drafters, 1700 lbs. and
over\$300@350
Light Drafters, 1500 to 1650... 225@250
Chunks, 1350 to 1500 lbs.....\$180@220
Wagon Horses, 1250 to 1350 lbs 150@180
Delivery Horses, 1050 to 1250... 110@125
Desirable Farm Mares..... 100@125

Live Stock.

Dressed steers are a little higher, and
beef cattle continue very firm. Hogs have
been coming in rather freely and show
a slight decline in prices.

Steers: No. 1 6½ @ 7 c
No. 2 6 @ 6¼c
Cows and Heifers: No. 1.... 5¾ @ 6 c
No. 2 5 @ 5½c
Bulls and Stags..... 2 @ 4 c
Calves: Light 7 c
Medium 6½c
Heavy 5 @ 6 c
Hogs: Grain-fed, heavy..... 6½c
150 to 250 lbs..... 6¾c
100 to 150 lbs..... 6½c
Prime Wethers 4¼ @ 4½c
Ewes 3½ @ 3¾c
Lambs 5¼ @ 6 c

DRESSED MEATS.

Steers 11 @11¼c...
Cows 10½ @11 c
Heifers 11 c
Veal, large 10 @11 c
Small 12 @13 c
Mutton: Wethers 8½ @ 9 c
Ewes 8 @ 8½c
Spring Lambs 11 @11½c
Hogs, dressed 11 @12 c

HIDES.

There is no very heavy movement at
the moment, though values remain fairly
steady as last quoted.

Farmers

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Address.....

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Hundreds of our readers have taken advantage
of our offer to furnish one dozen of the new
strawberry plants free and if you have not sent
in your name, you had better hurry.

This new berry, originated by Albert F. Etter
of Briceland, Humboldt County, can not be
purchased, but it can be had free if you comply
with the following condition: See that your
subscription to the Pacific Rural Press is paid
in advance through the year 1913 and request
the plants be sent you and we will do the rest.
No requests will be filled after Jan. 15th.

This is a very fine opportunity to get some of
this absolutely new variety of berry plants.
You will be proud to have them in your
garden. They will be sent you postage paid
without expense provided the above condition
is complied with.

Let us hear from you at once.

PACIFIC RURAL PRESS

420 Market Street

San Francisco

For a description of the Ettersburg Strawberries see Rural Press of Nov. 2, 1912

Heavy Steers, over 56 lbs. 14½c
Medium 14 c
Light Steers, under 48 lbs. 13 @14 c
Heavy Cows, over 50 lbs.. 13 @14 c
Light Cows, 30 to 50 lbs.. 12½c
Kip 15 @16 c
Veal 19 @20 c
Calf 19 @20 c
Dry—
Dry Hides 23½ @24½c
Dry Bulls 19½c
Dry Kip, 10 to 15..... 24½ @25½c
Dry Veal, 5 to 10..... 29½c
Dry Calf, 7 down..... 29½c
Sheep Skins—
Long Wools\$ 0.85@ 1.25
Medium Wool, 6 to 9 mos.. 60@ 90c
Short Wool, 3 to 6 mos... 40@ 60c
Lambs 35@ 70c

PUBLISHER'S DEPARTMENT.

A happy and prosperous New Year to
every patron of the PACIFIC RURAL PRESS.
Generally speaking, the past year has been
a prosperous one for the farmers of Cali-
fornia, and these good times are reflected
in the growth of this journal. The edi-
tion this week requires 2,000 copies more
than was issued the first week of 1912,
and our advertising patronage is much
larger than it was a year ago. Sales of
farm books from our office have been
heavier than for any previous year, par-
ticularly is this true of the two books
by Professor E. J. Wickson, "California
Fruits" and "California Vegetables." Just
now parts of the State are needing rain
badly, and as the season for storms is
upon us, we trust that a generous supply
of moisture will be received during the
next three months. With seasonable
weather from now on, the farmers of
California face a year of prosperity.

The second edition of "California Vege-
tables" is now entirely exhausted, and
Professor Wickson is engaged in revising
and rewriting the book for the third edi-
tion. We expect to make the coming
edition larger, better and handsomer than
before. The price will remain at \$2 per
copy.

Every chicken-raiser in California
should send to the Coulson Poultry and
Stock Food Co. of Petaluma for a copy
of the free 28-page booklet called "Chick-
ens." This book contains chapters on
incubation, brooding, breeds, location,
feeding, yards and houses, marketing, in-
sects and diseases, and covering all phases
of the poultry industry from the Califor-
nia standpoint. You need this book, and
the Coulson company would like to send
it to you.

Aggeler & Musser, of Los Angeles, have
just issued a handsome and voluminous
seed catalogue. It is right up to date,
and the firm will be pleased to furnish
you a copy upon receipt of request.

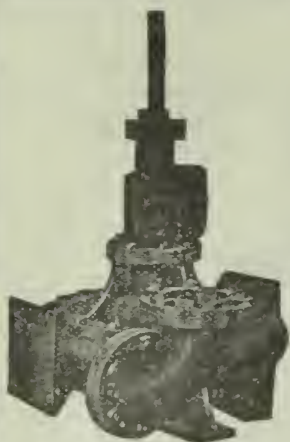
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526 California St., San Francisco.

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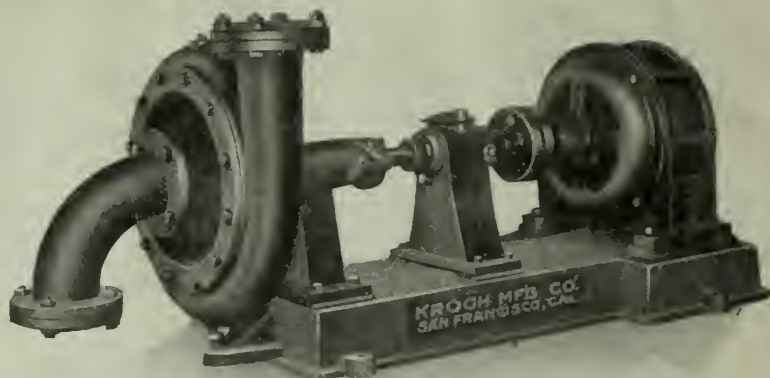
For the half year ending December 31,
1912, a dividend has been declared at the
rate of four (1) per cent per annum on all
deposits, free of taxes, payable on or after
Thursday, January 2, 1913. Dividends not
called for are added to the deposit account,
and earn dividends from January 1, 1913.
GEORGE TOURNY, Manager.



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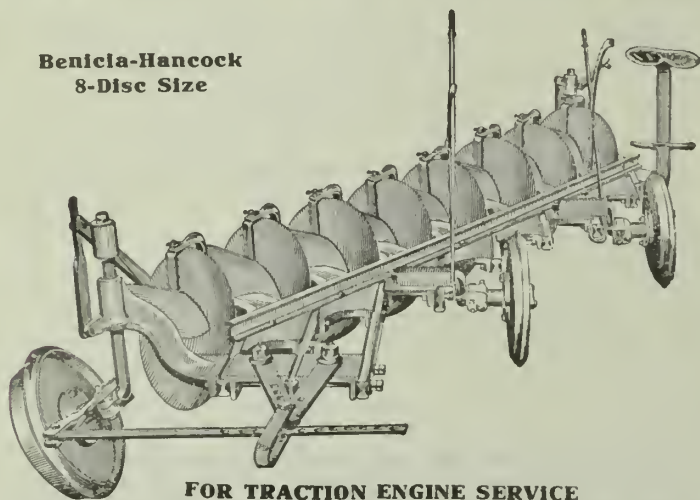
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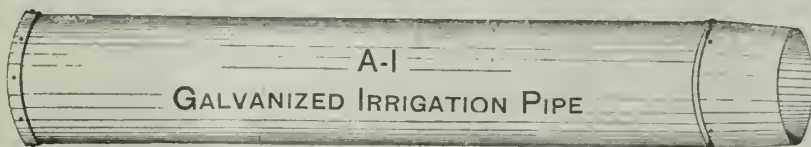
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San Francisco

THE PACIFIC RURAL PRESS

Vol. LXXXV. No. 2.

SAN FRANCISCO, SATURDAY, JANUARY 11, 1913.

Forty-Third Year.

Rejuvenation of the Foothills.

[Written for PACIFIC RURAL PRESS by JAY C. LOOMIS.]

It is a peculiar fact that one of the first districts in California to be thickly settled in the early '50s should be among the last places to awaken to the "back-to-the-farm" movement, but that is the situation one finds in Amador, Calaveras, and Tuolumne counties, known for years as the Mother Lode or southern mines district.

The chief reason for this is no doubt due to the mad scramble for gold, and one still finds many ranchers, after the season's farm work is done, prospecting for the elusive ledge; but this is becoming the exception rather than the rule, since examples have been made that those who apply their energy entirely to farming have made good.

It would, perhaps, be impossible to indulge in details regarding such a large district, so we will only give a short résumé of the things that have been accomplished.

Live Stock Interests.—More capital and energy have been spent in the live stock business than in other lines, with the result that, with the present price of beef, more thought is being given to the building up of herds with pure-bred stock, and in this respect an instance is cited that may be of benefit to other localities. As most of the stockmen do not run large enough herds to warrant buying more than two or three bulls at a time, several of them go in together and send to the breeding establishments a man who, being thoroughly competent, buys a earload at the one time, thereby saving considerable on transportation charges, time spent in traveling to and from the breeders, and, what is more important, saving a great deal on the stock itself, as almost any breeder prefers to sell in earload rather than in smaller lots and naturally quotes better prices.

Co-operation.—This instance seems to prove that co-operation can be of benefit to the stockmen as well as the dairymen, almond men, etc. But these stockmen go still further and have their live stock associations in each county who work in conjunction with the U. S.

Department of Forest Reserve, thereby greatly aiding the adjustment of the range question, which, in turn means the summer feeding for their stock. Almost everyone drives all his stock to the mountains for the summer pasture on Government land and returns with them to the home ranches for the winter, where the milder climate makes it easy to care for them, and also affords good winter range.

Why Better Stock?—Until recent years any animal that could be sold as beef was good enough, but the cutting up of ranges has necessitated the use of better stock, and the old cry that "I can't afford \$200 sires" has about spent itself, although instances are still cited of such cases. One in mind is of a prominent rancher in Calaveras county who had just bought three very fine young bulls with which to build up his herd. A neighbor who dropped in made the remark that he wished he could afford to buy that kind of stock, but considered it impossible in his financial condition. As the other man said he could not really afford it at that time himself, but he could sell four or five of his scrub animals without missing them and this would pay for the bulls. In three or four years his herd would produce enough more beef to compensate the loss of the scrub stock many times over, and today this same breeder is selling yearling calves at his ranch to the butcher for from \$30 to \$35 that would not have sold for nearly as much with the scrub stock breeding.

Dairying.—While the cattlemen have been improving their conditions, the dairymen have also taken advantage of the rich bottomlands, and in the Ione and Jackson valleys one finds vast areas of sub-irrigated alfalfa being converted into butter-fat and hogs. Here, too, the co-operative idea has been introduced, and one of the most satisfactory Dairymen's Associations in

the State is operating; of which we hope to hear more in a future article written for the Press by one who is in close touch with its affairs. These two valleys, practically joining each other, comprise the largest natural alfalfa land area in the mountains.

Fruits.—The hills adjoining are also very productive in peaches, and

(Continued on Page 56.)



Characteristic Scene in Sierra Foothills.



The Grain-Hay Industry of the Foothills.

Pacific Rural Press

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A. J. WICKSON - - - - - Editor
FRANK HONEYWELL - - - - - Manager
W. H. SCHRADER - - - - - Adv. Manager
D. J. WHITNEY - - - - - Associate Editor

CALIFORNIA WEATHER RECORD.

The following rainfall and temperature record is furnished the PACIFIC RURAL PRESS by the United States Department of Agriculture, Weather Bureau, at San Francisco, for the week ending at 5 P. M., Jan. 7, 1912:

Stations.	Rainfall Data.			Temperature Data.	
	Past Week.	Seasonal to Date	Normal to Date.	Maximum.	Minimum.
Eureka .....	.04	16.81	18.26	52	28
Red Bluff.....	00	8.21	10.89	62	30
Sacramento.....	00	2.86	7.73	62	26
San Francisco ..	00	4.98	9.11	58	33
San Jose.....	00	1.64	6.75	62	24
Fresno.....	00	1.31	3.96	62	20
Independence...	00	.70	3.92		
San Luis Obispo	00	1.07	6.95	76	20
Los Angeles	00	.94	5.76	84	28
San Diego	00	1.72	3.52	78	28

The Week.

We went to press last week and we prophesied a big rain—prophesying what we most wished for; which, we imagine, is the way with prophets, attributable to a psychological process which we need not pursue. Our false prophesy was prompted by good intentions, which is accepted as an atonement for many bad things. Everyone can afford to prophesy on this basis except the few who prophesy for a living—like Professor McAdie, who kept saying, "it will not get here" all the time we were smoothing the way for that great Portland rainstorm to come through; all of which proves that Professor McAdie is a better prophet than we, in everything except good intentions, and we let it go at that.

The sad experience with frost during the week shows that our grand barriers in the Sierra Nevada and its extensions are not high enough, and also have some gaps which need filling in; and the same is commended to the California Conservation Committee. The legislature is in session, and, judging from the propositions already aimed at it, is not likely to be startled by any claim for appropriations. It seems to be necessary to raise a high range of mountains across the Mojave plateau so that south-going blizzards may be more effectually shunted off into Arizona instead of pouring into southern California as they did last Sunday, bringing the lowest temperatures ever noted in that district of the State. As it now is, southern California has only a narrow, broken range between its beautiful valleys and mesas and the Mojave, which is a sort of reservoir for the torrents of cold air which are turned southward by the eastern sides of the Sierra, and when that reservoir overflows southward, southern California gets a fresher cold blast than do some parts of the State farther north, lying under a higher, tighter barrier which spreads out, on its western side, many scores of miles of warming pans, in its sun-kissed foothill slopes. We presume the temperatures for all

parts of the State will be found much the same for comparable situations everywhere; for, after all, California, with all the advantages of its environment, is nothing very high or very broad from the point of view of a blizzard which is wide as the continent, and yet we have conditions which keep us about as far above zero as the Rocky Mountain region goes below it, and perhaps we ought to be content with a margin of 50 or 60° between their low temperatures and ours.

There have been grievous losses in citrus fruits; it is too soon to measure them. Our most profound sympathy goes out to those who have disappointments to bear. It is no child's play to build up a great American citrus industry, nor is it merely a pastime of millionaires, as interested importers are claiming. Political demagogues who are saying that California fruit industries do not need protection should give heed to current facts—if they care anything about facts at all.

Professor McAdie Approves Our Platform.

While President-elect Wilson is passing sleepless nights in thoughts of ways to adjust his administration to the political platform on which he ran for the presidency, we are sleeping like a babe, in the consciousness that our editorial platform is merely a deduction from 38 years of experience as editor of this journal and that presumably the planks which have carried us thus far will endure to the end. And we find that our declaration is approved by one who is experienced in wrecking storms (including brainstorms, perhaps), and he holds our foundation secure and signifies his approval in this way:

To have great thoughts based upon doing little things in a great way; to reach great attainments by doing common work aright, skillfully and economically; to pass to greater things, step by step, by mastering knowledge of the best methods and the reasons why they are best—this comes pretty near to being our idea of valuable service in an agricultural journal. This is what we mean by quality, and we are always after it.

And Professor McAdie adds: "The above, from your issue of December 28, is good gospel. It is good enough to run at the head of not only an agricultural paper, but of a university magazine, and I suggest that you send it over to the editor of the University Calendar for New Year's. It would be a mighty good resolution for young men and young women to make—likewise for old men and children."

We regret that we cannot comply with Prof. McAdie's suggestion, for fear of arraignment for lese-majeste. It is the prerogative of the moral philosopher of the faculty to make mottoes for general university use. We cannot preach beyond our own parish. We hope, however, that readers will observe Professor McAdie's scientific exactness of expression; he does not prescribe the doctrine, as one might expect, for old men and women, for there aren't any old women, and so he chuckles the warning at the kids. Praise from such a discriminating writer is praise indeed.

Will the Women Settle It?

Speaking of women, is it not fortunate that they never grow old, for they are laying hold hard upon some of the problems which men have not only not settled, but admit that they do not know how to settle. Most prominent just at this particular moment is the question of how to give consumers wholesale prices for food in retail quantities. In previous issues we have told how they beat up the egg business in Chicago and Philadelphia. Since then the wires have been kept hot with the ways they have been whipping

the cream of the retail food business. In New York they have been selling apples at 5 cents per quart, against a retailer's price of 12 to 15 cents, and they are going right along with butter and eggs. The parcels post is to be used to its utmost and all kinds of farm produce will be included, to the end that "farmers will receive more for their produce than they now receive from dealers, while the consumers will get fresh food at lower prices than those now charged." The leader in the undertaking is Mrs. Julian Heath, president of the National Housewives' League, and she proposes to make the name come true by working in all the great cities of the country on the plan adopted for New York, which is the creation of a registry committee. Already this committee has begun its preliminary work of listing all farmers within the 50-mile zone. Membership will be open to all housekeepers who wish to avail themselves of an opportunity to obtain fresh produce at a small cost. This will apparently include all who wish to buy or sell by parcels post and will, we presume, be supplemented with a black list of buyers who do not pay their bills and of sellers who make Uncle Sam carry strong butter or addled eggs. We hope it will work, and there is a surety that the effort will teach a number of lessons however it comes out. There are a few things which do not seem to have been considered in the reports which come to us. First, a farmer cannot pack and deliver to the carrier a dozen or more parcels of eggs for the same price he can afford to deliver the same eggs in a case. Second, the postage has to be paid. Third, the registry committee cannot exist and operate without tribute from each buyer or seller or both. Add these items of added cost together and see how the total increment compares with the margin which retailers charge when they are operating under normal competition. We have no idea of the answer to this question; that is one of the lessons to be drawn from experience, whether it be successful or otherwise.

In the Matter of Eggs.

We imagine that there is greater chance for demonstrating too wide margin in the selling of eggs than of other commodities, for there is more gambling in the egg trade; in fact in any article, perhaps, in which cold storage and fresh production may compete with each other through misrepresentation. In such products there is the greatest opportunity for sensational cuts in prices and for operations against both producer and consumer. The Eastern women manifested dramatic insight in choosing eggs to deal in first. They had all the opportunity to bring the price down from the high level of fresh eggs down to the low price at which the masquerading article cost when it was put on ice. What they did was a good thing to do, for it was simply a turn against the exactions of egg gamblers. Of course, all there is in a stored egg, beyond reasonable storage and distribution costs belongs to either the producer or the consumer or to both. Extortion in handling the people's food should be impossible. Fair trade in eggs is a good angle at which to strike current extortion. Force gained by success in this line will help to other needed undertakings. Our poultry contributor, Mrs. Swaysgood, has properly commented upon this subject as manifested in Los Angeles. During the current week there was a meeting held in the Chamber of Commerce of San Jose, called by the Santa Clara Poultry Association, which is expected to establish in San Francisco a clearing house for eggs, and we shall have account of the transactions of that meeting for our

next issue. It is expected that the poultry people of northern and central California will act together in promotion of such ends as shall be provided for at the San Jose meeting.

What Can Women Do for Food Prices?

It seems to us that such a movement on the part of egg producers as above indicated is more significant and promising than any little direct trade by parcels post can ever be, and yet we do not decry the latter. Let it work for all there can be in it. It seems to us however, that anything really effective in reducing the immense and unreasonable margin between returns to producer and cost to consumer must come from a marked change of attitude among woman-kind toward the purchase of home food supplies. We imagine that women must agitate each other so that self-selection and food-carriage by the housewife shall become a matter of pride and of conscience, as it was with our grandmothers. In this way retailers can be brought down to a fair handler's profit, and we know no other way; in this way distribution cost can be minimized, and we know no other way for that either. But far be it from us to say that, therefore, the women themselves can alone determine what the price of food shall be. They may say that to each other if they dare. We have too much regard for the value of the publisher's property in this journal to say any such thing. But suppose some woman should say so and we could follow the Adamie precedent of blaming it upon her, what a blithering sermon we could preach!

As it is, we can only suggest, in all humility, that the way to make the present generation of women act like their grandmothers is to make it fashionable so to do. And we use the word fashionable in a good sense; as though we had said popular, or chic, or good form, or any other thing of which a person can be reasonably proud and complacent and which yields an inward glow. This can be done by precept and by example by women, and by none other. Men can provide market places, as they are now doing in various cities all over the country, but men cannot make women go to them. They must make themselves and each other. And there must be something charming and distinguished about it—such, for instance, as automobiles with out-riggers to carry homeward-bound produce so that the food-buyers may sweep up the avenues aureoled with esculent foliage and wind-ruffled poultry feathers, as though they floated in decorated aviaries. Can anyone doubt the popularity of the public market and direct trade if a society leader should thus demonstrate both to be awfully proper? But of course the ladies of the boulevards could not thus settle the whole question. The ladies of the cross-streets need leadership of their own type to work by trolley line. A market basket is a hateful old thing. Our grandmother did not like it, but she endured it just as grandfather hated and endured his gaudy carpet-bag. Fortunately the present generation need not be humiliated by such containers. Let the market basket be of pendulous form, of peek-a-boo weave and ribbon-knotted; let it be lined with illusion so that a rival may peer in vain at the openings to learn whether that delightful fragrance exhales from a dime cauliflower or a nickel cabbage, or whether the breath of the sea is wafted from a costly Yarmouth bloater or from a cheap red herring. Thus you see, homely economies need not be exposed to all the neighbors, as the inexperienced person might hold to be the penalty of public marketing.

Will the Women Do It?

Why do we keep sticking this pointed question

into ourselves? This is a case of editorial conscience: we must keep asking though we dare not answer. Unfortunately, there is a bold bad man who has just arisen and cried out that the women of today will not do any such thing, and then adds shameful details which we shiver to repeat. He is George K. Holmes and he is chief of the division of production and distribution of the Agricultural Department at Washington: "The women of the present age have forgotten, or are too proud, to indulge in household work and are neither able or willing to repeat the manual labor performances of their grandmothers on the farm. The great stores of preserves, dried and pickled fruits, berries and vegetables exist chiefly in history, and dependence is placed mostly upon the local store for the products of the cannery and the evaporator. The passing of the old-time domestic industries is deplorable. It is even rare that one of the younger women know how to knit."

Isn't that awful, Mabel?

Queries and Replies.

Querists must submit full names and addresses.

Olive Growing.

To the Editor: What kind of soil is best suited for olives? What amount of water is required? What condition should ground be in for planting? How far apart are trees planted? What amount of frost and heat will they stand? How soon will they bear profitably, and when do they become full bearing? What time of the year is the crop picked? What average return will the crop bring per acre? What is the present price paid for olives per pound?—B. W. C., Terra Bella.

The olive succeeds on practically all of the California soils which we find suitable for fruit-growing. It does not seem to be fastidious about particular soil character, but it is necessary that the plant should have moisture enough not only for maintaining its life, but for sufficient growth and vigor to permit fruit-bearing. The amount of water depends upon the character of the soil as to retentiveness, depth, etc., and the ground should be well prepared for planting as for other fruit trees. Plantings may be at 24 feet or at greater distances if fillers are temporarily employed.

The tree will endure much lower temperature than the orange, and does not object to heat if moisture supplies are ample. The fruit is, however, liable to injury by a frost which may not injure the tree. The fact that the trees have been growing for years in the interior plains and to elevations in the foothills, higher than is safe for citrus trees, indicates that they have wide tolerance of temperature extremes. The trees usually bear at five years of age, increasing in product according to the size of the tree. They have not been grown long enough in California to determine at what age they come into full bearing. The crop is harvested in November or December, or even later near the coast.

An average return per acre is not instructive. The return may run from nothing up to as high return as you ever heard of for any fruit. The only edifying average is that secured by figuring the behavior of the same trees for a number of years, and that might not fit other trees. At present, prices are running high, say \$50 per ton for oil olives, \$60 to \$100 or even \$120 for good samples for pickling, and there is now a very wide planting going on. Whether the olive is safe to plant in any particular district depends whether you can find trees of sufficient age which are not only growing well but bearing satisfactorily. It is not safe to plant largely unless this actual demonstration can be found in the locality. Such

planting is an interesting experiment, but not a rational investment.

Red Clover Not a Good Winter Grower.

To the Editor: I am putting in a field of oats and a field of wheat, and intend sowing red clover as fertilizer for next spring, to turn under. The land has not been cultivated for years and is a dark loam. Being a stranger in this part and not being acquainted with the seasons here, I should esteem it a favor if you could give me any data on the subject.—J. E., Santa Rosa.

Although red clover makes very satisfactory growth in California, if irrigated, it is not a good winter grower and does not endure long after the dry season sets in except on low bottom land where the water is near the surface or on irrigated lands. For these reasons it is very doubtful whether you can get very satisfactory results by using red clover as a winter growing cover crop. You can get far better results from burr clover and vetches, for they are good winter growers and will cover the ground quite quickly by the time for plowing under in the spring, which red clover would not do. If you wish to grow a winter crop for forage, the sowing of oats or rye with vetches gives good results. This winter growing crop, however, should have been sown two months ago in order that it may make a start in the warm fall weather. If the season should, however, remain warm and open with not much cold rain, you might get good results in your coast valley with oats and vetches by sowing now. It would be wise to try a small piece in order that you may have some experience to go upon later. All these things in California are governed by local conditions and what might be very satisfactory in one place might not in another. There is, however, quite clear testimony that on sufficiently moist land in the region north of the bay vetches are a very satisfactory forage crop and good also for plowing under towards the close of the rainy season.

Alfalfa Seed Crop.

To the Editor: Can a person purchasing a tract of alfalfa land in your State, where the alfalfa is grown for hay under irrigation, take that tract as it stands and get a good seed crop from it?—C. E., Cleveland, Ohio.

You can get a good crop of alfalfa seed by taking a field which is well established, cutting the first growth of the season for the silo; allowing the second growth to stand for seed. This method cleans the field of foxtail and other winter growing weeds and gives you a very clean lot of alfalfa seed. We remind you of the excellent articles on alfalfa seed growing in Modoc county, California, in the PACIFIC RURAL PRESS of August 10; in Nevada, in the issue of November 9; and in Arizona, in the issue of December 28, 1910. Conditions are described which seem to indicate that these interior regions of this coast should produce the world's commercial supply of alfalfa seed.

Planting Jersey Kale.

To the Editor: Please tell me through the PRESS how and when to plant Jersey kale. Do you grow it like cabbage?—M. J. T., Oleander.

Yes, grow it like cabbage, except that you need the plants about three feet apart each way, or two feet apart in rows four feet apart, because it makes a top growth like a small tree and must have room for leaf expansion. You can strip off the leaves for feeding and the tall stump will keep new leaves coming. Grow your plants in a seed bed now and set out in February whenever the ground is in good condition. If you had planted last September on ground properly moistened by irrigation you might be pulling leaves now. The plant does not care for California valley frosts. You can have it growing all the year if you keep the moisture right.

Prevention of Fungous Attack in Fruit Trees.

[By H. S. FAWCETT at the Fresno Fruit Growers' Convention.]

The time-worn saying that "Prevention is better than cure," holds true with as great force in the control of diseases of trees as it does in the control of diseases in the human species. It is also true that prevention is easier and cheaper than cure. Much extra labor and many thousands of dollars would be saved annually if greater care were exercised at all stages of the tree's life from the time it is in the seed and the bud till it is beyond the age of usefulness to the orchardist. There probably always will be need for effective remedies for attacks of fungi in trees, just as in case of attacks of bacteria in man. Some tree diseases come to us at first unawares, and measures for their control are necessarily delayed until after the trees are suffering. It will not be the purpose of this paper, however, to treat of remedies and cures but to emphasize strongly the necessity for using preventive measures when possible; to emphasize the value of getting in on the ground before the enemy arrives, or to put up barriers or to develop such vigorous resistance that the fungi will have little chance to get in their work.

The Fungi.

The fungi are not mysterious kinds of organisms generated out of nothing, but they are real live plants growing from spores just as weeds or trees grow from seeds, each kind of fungus producing its special kind of spore just as each kind of tree produces its special kind of seed. The spores give rise to mold-like growths, many of them too small to be seen, even under the hand lens.

A Fight Between Tree and Fungus.—When a parasitic fungus attacks a tree there is, in a sense, a fight between two kinds of plants, the fungus-plant and the tree-plant. We have on one hand the resistance of the self-sustaining tree which, when healthy and vigorous, is often very great, and on the other hand the attack of the dependent fungus. Conditions surrounding both the tree and the fungus have much to do with whether the tree can resist successfully or whether the parasite becomes established in sufficient amount or numbers to materially injure the tree. This explains why fungous diseases vary so in severity during different seasons and why, at times, a disease may be attributed entirely to weather conditions when it is due, in reality, to the attack of a fungus which has been encouraged in its growth by this particular kind of weather.

In order not to give a wrong impression in regard to these fungi, it may be mentioned here that there are, living on the dead and even on the outer surface of living parts of trees above or below the ground, many kinds of fungi that the tree does not have to fight, that are not parasites, that are never aggressive and possibly distinctly useful. As soon as any one part of the tree dies or is killed as by frost or dry winds or insect attack, these harmless fungi grow into the dead cells and live there. The presence, therefore, of fungi on the dead parts of a tree does not necessarily show that they were the cause of the death, though they may have been.

Recognizing this relation or fight between the tree and certain fungi, the fruit grower naturally takes the side of the tree against the fungi and employs specialists with their microscopes and culture dishes, etc., to tell him, if possible, what each kind is doing, how best the tree may be assisted in its fight, and when and where to strike the fungus as it threatens the tree.

Preventive Measures.—Some of the different means of prevention that may be used under varying conditions are:

1. Surrounding the tree with the most favorable conditions for vigorous growth and resistance, or
2. Planting only those varieties or strains known to be resistant to attack, or
3. Keeping the trees away from sources of infection or

4. Where these measures fail or are impracticable, covering its parts with a fungicide or its cuts or wounds with a suitable substance to keep the fungi out.

In the short time allowed for this paper only a few cases will be taken up, all of which come under the last two means of prevention, e. g., that of keeping the plant away from sources of infection, and protecting it with surface applications of sprays or other substances.

Protecting Wounds and Cut Surfaces.—The protection of wounds or cut surfaces in fruit trees is of great importance. It is a common thing in some orchards to see projecting stubs more or less prominent left where limbs or branches of considerable size have been cut off. In many cases these stubs have died back and are seen to be rotting inward toward the heart wood. Whether toadstool or other fungous growths are visible or not, the rotting and decay is almost sure to be due to them. These fungi are usually only wood destroying forms and could easily have been prevented from entering. In cutting off limbs, it is of importance that they be cut flush with the remaining limbs and cut smooth. It is better to leave no projection at all, even though this requires a cut two or three times as large. The cut surface, if protected by suitable covering to keep out fungi, will heal over rapidly and leave a smooth surface. Butchering and hacking trees in the manner sometimes seen, is just an invitation to the weakest parasite to do its best in injuring the tree. In a small degree, at least, cutting off a hardened branch is like cutting off a finger. If a cut finger is allowed to be dirty and not disinfected, blood poisoning and puss formation will or will not set in, depending on the presence or absence of injurious bacteria, and in the same way slow rotting and decay will follow a cut or injury to a tree depending on whether injurious fungi or bacteria are present. If the wound is covered with a substance that is waterproof and at the same time a disinfectant, chance of decay is prevented. A covering for cuts and wounds that has been found most useful for this purpose in the experience of the writer is a liquid wax that may be put on cold with a paint brush. The formula is as follows:

Tree Wax.

- 1 pound rosin.
- 2 ounces tallow.
- 6 ounces alcohol.
- 1 ounce spirits turpentine.

Heat the rosin and tallow together, cool down somewhat and pour in alcohol slowly while stirring. Last stir in the turpentine. Use care not to get in more turpentine than the formula calls for.

White paint and tar are often used with good success, but injury is sometimes experienced with some kinds of paints and with coal-tar. [The wax which Mr. Fawcett describes is most excellent but it is very expensive to use on a large scale and the materials in common use in this State are quite good enough and much cheaper.—EDITOR.]

Protection of cuts or injuries, the writer believes, should be begun in the nursery when fruit trees are first cut off, after the buds start to grow. It is probable that many nursery trees are handicapped from the start by allowing the bud to grow around a cut surface that has begun to decay.

Prevention of Root Rot Fungus.—Very different methods from that just described are to be used in the prevention of root rot or oak root fungus (*Armillaria mellea*). This fungus lives on roots or pieces of wood in the soil and its prevention lies in getting out all roots or pieces of wood when the land is being cleared of infected oaks, sycamores or other trees, and, if possible, raising annual crops on this soil plowing it deep for a year or two before planting it to fruit trees. In cases of orchards already infected only in certain areas or spots, the means suggested for preventing its spread is to quarantine or isolate

these areas either by rooting out trees all along the edge of the infected area or by digging a trench about it and lining the sides with tarred paper. This tarred paper, the upper edge of which may be placed low enough to allow for cultivating and irrigating over its top, is to keep the roots of an infected tree from communicating the disease to a healthy one.

The rate of travel of the fungus on the roots of orange trees is from a half a tree to one tree per year in any one direction. For other fruit trees the rate of travel may sometimes be greater, depending on the kind of tree and possibly on the nature of the soil. Figs and pears and possibly some varieties of cherries and the native black walnut are the only fruit trees known to be practically resistant to its attack.

Prevention of Peach Blight and Leaf Curl.—A preventive method entirely different from either of the two previously mentioned cases must be used for peach blight (*Cosylenm beyerinkii*) and peach leaf curl (*Exoascus deformans*). In this case prevention is obtained by covering the surface of the twigs with a fungicide before the spores germinate or before the fungus filaments have time to penetrate the surface. If one could always tell just when the fall rains would begin or what the weather conditions would be, one could time his spraying perfectly, but this being impossible the time has been put by Professor R. E. Smith and his coworkers at from the first of October till the middle of December for the first spraying, and about the middle of February or just before the buds open, for the second spraying. Practice seems to have shown that the first spraying may be Bordeaux Mixture about 5-5-50 and the second spraying lime sulphur solution. The advantage of the lime sulphur over Bordeaux for the second spraying is that if the peach worm is present, it will help to kill that also.

Methods of Prevention Vary.—The above description of the means of prevention illustrates only a few of the different methods to be used against fungous attack and points out the fact that while certain general rules may be applied for fighting certain classes of fungi, each tree disease, just as each human disease, must be studied and experimented with until a method best adapted to preventing that particular one is found. What will be highly successful in preventing one fungous disease may be an entire failure when applied to a different one.

In conclusion, the ideal line of prevention for fungous attack should begin at or before the seed is planted or the bud is chosen for propagation, with the thought of selecting varieties or strains naturally resistant to serious diseases. Then the cut surfaces or chance wounds should be protected and allowed to heal smoothly and without decay, the tree should be surrounded with the best conditions for growth and therefore resistance to many fungi and when all these fail and attack comes, as in case of special or new diseases, then to cover the parts with spraying solutions to keep the spores from germinating upon the surface or to put up barriers when possible against them. The easier and less expensive prevention, rather than the more difficult and more costly cure, is what we should strive for in the control of fungous diseases.

BERRIES IN OREGON.

It is interesting to keep track of what our friends in western Oregon are doing in the development of their berry industry. W. H. Addis, of Montaville, gives an interesting outline of present practice in the Fruit Grower, of Missonri, which we bring back to the Coast for wider local edification:

Strawberries.—On land that has been clovered, following an old planting of strawberries, the crown borer is troublesome. On newly cleared land, where these insects have not started, strawberries pay from \$150 to \$300 an acre. The two old favorite varieties, Clark's and Wilson, are still popular. Clark's is an early variety, and Wilson is for the housewife to eat. The canneries prefer the Clark's. The Marshall and the Magoon are used as main crop berries, and as they are large and sweet, they sell best on the open market, but are accepted at the canners' at a fraction of a cent less per pound than the Clark's.

If the strawberry field is well cultivated after

the berries are harvested, that is, through July and August, keeping the weeds out and maintaining a dust mulch, the crop the spring following will be good to very good. But if weeds are allowed to grow and the ground to harden, then the crop will be light and no amount of spring work can make it as heavy as if the land had been well tilled the summer preceding.

Gooseberries.—Gooseberries grow and do well almost anywhere. Cultivation, pruning and spraying add to the size of the fruit, but they grow where neglected and even in the driest part of eastern Oregon.

The Champion, as it is called here, or Oregon Champion, as it is catalogued by Eastern nurseries, is the sort that has displaced all other varieties. It is large, practically free from mildew, transparent when ripe, bears abundantly, and is far less thorny than other sorts. Large acreages of gooseberries have been set out in recent years, but as the canneries take all of them, no surplus has yet been produced.

Currants.—Currants grow remarkably well, and the demand has never been fully supplied. Fay's Prolific and the Cherry currants have long been the standard varieties, but the introduction of the Perfection bids fair to drive them out, as it is a larger berry and a heavier producer. Like gooseberries, currants grow bushy and do not need wiring up.

Raspberries.—Red and black raspberries and blackberries are trained between two long wires made fast to posts. Loganberries are trained to three wires, one above the other. Only two varieties of red raspberries are grown for market in this region. For early market, the Marlboro, and for main crop, the Cuthbert. Coming early and being a large fruited sort, the Marlboro is a paying variety, but the Cuthbert is the favorite because of the superior flavor. It is a much thriftier grower and heavier cropper than the Marlboro. Red raspberries are sure croppers, free from diseases and pests, and the roots live a long time. I know one patch that has been set twenty-five years and grows as large canes and bears as big crops as it ever did. The demand is usually sufficient to fix a good price for them, and they always sell.

Black raspberries are sure croppers, and if the market for them as fresh fruit does not take them up at a good price, they can easily be dried in the sunshine.

At Springbrook they are grown in fields of twenty acres, and the fruit is all dried for market, where they bring 22½ cents a pound, or \$450 a ton. Near the city of Portland these berries are grown for the fresh-fruit market only. This year they sold on the open market at \$1.75 and \$2 per crate of twenty-four 1-lb. boxes.

Hybrids.—Loganberries and Phenomenal berry are so nearly identical that the fruit is never distinguished on the market, but all go as Loganberries. The growth of the plants is so much alike that only an expert can distinguish them, and that only by a slight difference in the color of the half-grown leaves. The Loganberry is a rampant grower and prolific yielder. It stays green all winter and, if wired up, will sometimes die where the wires touch the vines in the event of freezing temperatures. This fact necessitates training them up to the wires in the spring when the danger of freezing weather is past. They produce large, handsome berries and continue to bear all summer. They are not good shippers, so the acreage is not so great as of red raspberries or blackberries. They are, however, very profitable.

Blackberries.—The Mammoth blackberry is something like the Logan in growth, but has proved to be worthless as a commercial berry. Blackberries do exceptionally well. The bushes grow large and healthy and fruit heavily. But two varieties are grown for market purposes, the Kittatiny and the Lawton. All other sorts have been discarded. The Kittatiny is a little larger than the Lawton, and is very large and sweet. On moderately poor ground, or poorly cultivated, it grows a moderate bush and fruits heavily. On rich land, or where cultivated the same as the Lawton, it produces too much bush. The Lawton grows plenty of wood and bears long crops. It is still in bloom when ripening the early part of its crop, and continues to ripen berries until the cool weather of fall curls up the wood. The berries

are very large, rich, and very sweet when dead ripe.

Culture Points.—The secret of successful berry-growing in western Oregon is in thorough cultivation. All bush berries should be set in rows seven feet apart. In the spring the rows should be plowed away from and all weeds and dirt cleaned away from the stools. The soil should be plowed back toward the rows and the culti-

vator run through after spring showers, until the weeds quit growing, thus forming the moisture-retaining dust mulch. If picking begins on a dust mulch, and there is no more rain, no more cultivation will be needed, but if it rains, then the tramping of the pickers will pack the ground and more cultivation will be necessary. Worked in this manner, berries return good interest on high-priced land where nothing else would pay.

Walnut Culture in California.

[Written for the PACIFIC RURAL PRESS.]

The above is the title of a bulletin just issued by the College of Agriculture on Walnut Culture and the Walnut Blight. It was written by Professor Ralph E. Smith, assisted by Clayton O. Smith and Henry J. Ramsey and includes the results of eight or nine years' investigations. The bulletin contains nearly 300 pages and is the most comprehensive publication on this subject ever gotten out in California. In this review only a few points can be considered and anybody interested in walnut growing would find great advantage in sending for a copy of the bulletin and keeping it in his library.

Prospects.—At present the leading walnut districts promise to be in the southern coast counties, where most are now produced, and within a radius of about 150 miles of San Francisco. Through the rest of the country the walnut does not seem to be a very great commercial possibility. At present the greatest problem is the blight, which has kept down the yield to what it was a decade ago in spite of large plantings. The blight, however, can be resisted to a moderate extent by choice of varieties.

The yield evidently can be greatly increased by selection of varieties, as the average product per year for the older seedling groves of the State is scarcely more than 50 pounds per tree. By proper selection and with good soil and care 200 pounds per tree, 15 trees to the acre, may possibly be expected from a mature grove, with 300 pounds an ideal to work to.

Wild Varieties.—Wild varieties bear an important relation to walnut growing, as all permanent plantings should be upon black or hybrid stocks.

California is the home of two wild varieties, growing in the southern and the central part of the State respectively. There are also many trees of the Eastern black walnut and other species. All of these nuts hybridize very readily with one another, so that many "wild" trees are really hybrids of different wild species, or hybrids of the English and a wild species.

Hybrids.—These hybrids form the best stocks possible, having great vigor and hardiness. Their growth greatly surpasses that made on seedlings or pure wild trees, grafted or ungrafted.

There are two classes of hybrids, one a cross of the English walnut and a black, and the other between two blacks of different species. The first is called a Paradox, the second a Royal. Nuts from the hybrid trees themselves are rarely of value, though occasionally a tree may be found that will produce nuts the nurseryman will find profitable to use. As a general rule the best cross is between pure species.

Unfortunately only a small proportion of the nuts planted with the intention of securing hybrids will generally come up as hybrids and the average orchard will probably have to be set on black roots. There are some special locations that hybrids are well adapted to. Anyone intending to plant out walnuts should look this matter up.

Of the pure black species the native varieties apparently are best, although heretofore no special attention appears to have been given to the source of the nuts for nursery use as far as species is concerned.

Location.—The walnut cannot stand low temperatures in the growing season, though severe frosts have no effect when the trees are dormant. As far as minimum temperatures are concerned it seems clear that by the selection of suitable varieties the trees can be grown in any part of California where other fruit is produced.

Heat is a different proposition, for while the trees of suitable varieties may do well in all but

the hottest and driest portions of the State, in most hot, dry districts the nuts suffer from sunburn and the meats may be at least discolored and poorly developed. However, much can be done to offset this difficulty by selection, although commercially the planting will be limited largely to the sections suggested previously.

Culture.—Walnuts should be planted on rather heavy, deep soil with an abundant and uniform supply of moisture. The soil should always be well drained and should be underlaid by a heavy, if not impervious, subsoil.

Irrigation practically always would be a benefit, a good supply of moisture being necessary to prevent die-back and frost injury, while good moisture supplies in spring and summer aid in securing good crops.

Fertilizer trials were conclusive, but indicate a benefit from barnyard manure and other organic nitrogen. Phosphates also are desirable, but the main thing is to keep the soil in good physical condition.

Thinning out the center of the tree to let in light and air has been found to be an advantage in increasing the yield, without doing any injury to the tree.

Planting.—Planting ought to be 55 or 60 feet apart. Interplanting with the intention of removing intervening trees is acceptable provided the intervening trees will be removed, and there is a big advantage in selecting the right sorts for the interplanting, which an examination of the bulletin will show.

Planting the nuts in place is altogether inadvisable, although transplanting black walnut seedlings with the intention of grafting them over may have slight advantages in some locations. In good locations the only way to do is to plant good grafted stock and be done with it. A large hole should be dug for each tree, considerably larger than the root, and with the heavy subsoil best suited to the walnut it is extremely advisable that a stick of dynamite be discharged at a still greater depth below the hole.

Varieties.—There are two classes of varieties, the Santa Barbara soft shell type, like the bulk of those raised commercially as yet and the French varieties, which are grown mainly in the northern districts.

Practically all varieties tried in the State are described. Those given most detailed description as being commercially the most promising are the Chase, Concord, Eureka, Franquette, Placencia Perfection, Prolific and San Jose. Not all of these are likely to endure commercially and some other varieties such as the Bishop, El Monte, Neff, Mayette varieties, Willson's Wonder and other Bijou types which are described less in detail may come forward strongly.

The Eureka, unlike the other nuts, is largely of Persian strain. The bulletin says, "The Eureka comes very close to satisfying the requirements of an ideal walnut for California. It is a fine large nut of strikingly handsome appearance, extra full meat and weight, perfectly sealed, light colored meat, fine flavor, marked immunity to disease, a strong, vigorous grower and ultimately a heavy producer."

For market requirements and without relation to yield, an expert classified some of the leading nuts in the following order of desirability: Placencia Perfection, which was considered the best not being included in the samples submitted: 1. Eureka. 2. Franquette. 3. El Monte. 4. Disher's Prolific. 5. San Jose. 6. Chase. 7. Concord. The first three were about on a par and well ahead of the others.

Walnut Troubles.—By far the most serious trouble is the blight. There seems to be no direct way of controlling this. The best that can be

done according to present knowledge is to select varieties that are least affected by it.

Partial immunity to blight is secured in two ways. One is by late coming out in the spring so that the weather is unsuitable to a rapid progress of the disease. Occasionally also a tree comes out too early for the blight to get in most serious damage. The other method is to get trees that aside from time of coming out appear to have a partial and true resistance to the disease.

To avoid blight with trees now growing top grafting can be done with great advantage both for blight and for heavier bearing. The top grafting is more difficult than with most trees and requires careful workmanship and supervision. When well done a real loss of crop will

occur only in the first year. After that the trees rapidly catch up to the others in size and greatly outyield ordinary seedlings.

The blight is less serious in some localities than others and less serious in some seasons than others. As a rule the more moisture in the air, especially fogs, the more blight.

Aphides are the next most serious pest. There also appears to be no satisfactory method of control for these. The other troubles are either of moderate importance or can be practically all overcome by seeing that proper soil conditions are provided, with a good climate, a suitable variety and the right kind of a root. Under these conditions the culture of the walnut will be much more profitable than it is even now.

and mode of conduct as far as we care to bother about.

They vary in size, but for a general average about 500,000,000 could sit on a half dollar. Their bodies are very simple affairs, being little else but water with enough other matter present to hold them together. Some have hair like appendages but most have no more frame or organs visible than a soapbubble.

They thrive only in moist material of some kind or other and simply absorb the food from all sides through the moisture. The way they do so much damage by tearing into things, in disease or decay and similar processes is not by getting after their food tooth and nail, but simply absorbing their food and letting waste matter seep out of their walls or sides, that waste matter playing the havoc, or doing the good as the case may be.

Reproduction.—Bacteria ordinarily have neither parents nor offspring. A bacterium, the name for a single one, simply absorbs food in water until it grows to about double size and then breaks in two. Which is parent then is more than the ordinary man can tell. When everything is in good working order, certain kinds can double in number in half an hour. To indicate their power it can be stated that if one of these got started increasing at that rate and kept it up for two days running, he would multiply until he was big as the world, from pole to pole and everything between.

Naturally food would run out long before the bacteria got well started, other things would hinder their increase and when bacteria increase too plentifully the juice they make for themselves kills them. Nevertheless their power of rapid reproduction shows that a very little can go a long ways if everything is suitable for their propagation.

This always made the writer skeptical of the benefit of putting dust on a field for the sake of the bacteria therein, and so on. Dust blows on quick enough and any good probably comes from other sources than merely a heavy dose of bacteria.

Food and Comfort.—This brings us to food and conditions for increase. Bacteria always want

Soil Bacteria and Fertilization.

[By our ASSOCIATE EDITOR.]

The last paper upon Fertilization concerned nitrogen. Now except for the nitrogen that the burr clover, vetches, peas, etc., are gathering as cover crops, nitrogen is not going to be applied as a fertilizer until the plants get ready to start work in spring, so we will go on now to the subject of soil bacteria, which have lots of connection with nitrogen and with all other soil activity. We are not through nitrogen by a great deal and in fact the subject of fertilization is so big that it looks as if we were going to keep talking about it for a year or so yet unless the editor calls a halt or our readers start kicking.

There's lots to say merely about bacteria. When they were first discovered our Sunday supplement scientists nearly scared us to death with them. Lately they have been heralded as our best friends, but after all we have both very good friends and awfully mean enemies among them. Bacteria are found all over, in soil, air, food and so on. They say that there are enough real bad fellows on a dime to wreck disaster on a city if they could all get started properly. We can get

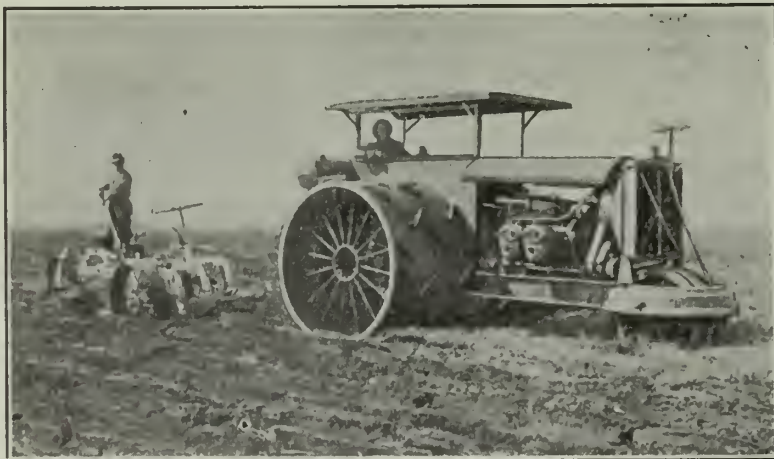
seared of them if we want to, but since they are so abundant the best thing is to go on the even tenor or our ways, live according to the brand of common sense that was common before the microscope got working, take the few reasonable sanitary aids to cleanliness that science has provided and the bad fellows will keep quiet and the good ones will thrive.

Nature seems to have arranged things nicely. When we do as good sense seems to indicate, keep things clean, let in plenty of air and sunlight, keep down the dust and so on, the harmful bacteria are quiet. When things get littered up, air is shut out, dust is abundant, or the soil gets waterlogged, since we are talking of soils, the good fellows get tired and the bad ones wax vigorous. Thus science backs common sense and gives us a good general rule of action.

Size and Nature.—It is not hard to get a line on the nature of bacteria. They are of three fundamental types, shaped something like an orange, a lead pencil and a corkscrew. Only those of one of these types can correctly be called bacteria, but they are all about of the same nature

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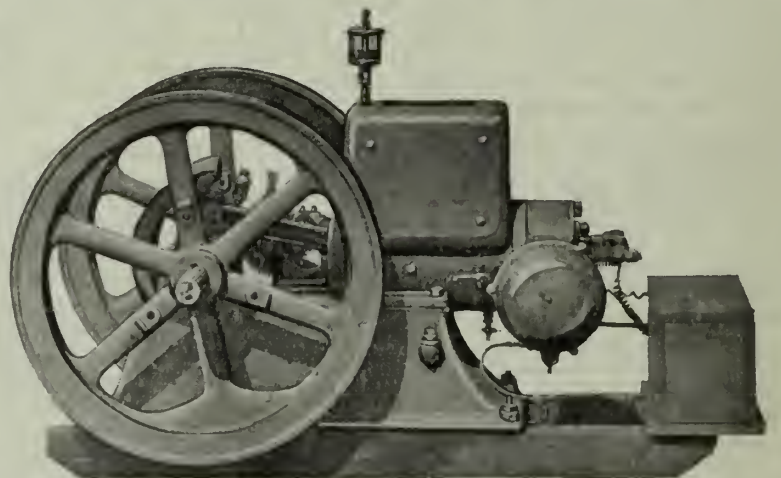
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easy living, they have to have their food prepared for them. Although they are plants, they cannot take a lot of mineral elements and grow like most plants do. They have to be in a moist enough material and have that moisture contain food that comes originally from either plants or animals. Some need air, some want no air. Some like things a bit sour, some can't live in a sour location, but want lime or similar material to sweeten things up. The best kinds for us generally want conditions the way that they seem nice to us.

Bacteria, by the way can exist in a perfectly dry condition, but only exist, not work. They also can be reproduced or held over to a new generation in a more complicated fashion than we have described, but there is no use in going into side issues.

The need for this kind of animal or vegetable food shows that only when there is "life" in the soil will bacteria act. Where plants will not thrive the bacteria are few and weak. Where manure is plowed under, where grass and clovers are abund-

ant, humus and vegetable matter present in quantity, bacteria are at their best.

Bacteria in living off the vegetable or animal matter in the soil free mineral plant food to a great extent, through the matter that they give out. Naturally they cannot live off the mineral fertilizers, though the material in mineral fertilizers may help them greatly, and in a very sandy soil, where no cover crop will grow strongly between the trees it is evidently desirable for the sake of the bacteria, and for other reasons, to use some organic commercial fertilizers, or stable manure, etc. By the way, also the higher developed the food the better for the bacteria. Dried blood, soya meal, and other material with lots of proteids and well organized matter, is easier for the bacteria to work in than the same amount of sawdust, prunings, straw, or other matter that is not much like food.

The Element of Temperature.—The element of temperature is very important for bacteria. Ordinary plants are very sensitive to cold and make

a better growth in comfortably warm weather than in cold weather. Bacteria are still more sensitive and most soils bacteria hardly work at all in the ordinary winter temperature of our soils, unless near the coast.

Some work better than others. Vetches, burr clovers, peas and similar winter growing legumes would not gather nitrogen if it were not for the bacteria on their roots and that class of bacteria for those plants can live and work, while most soil bacteria work but little in winter, and that brings us to an important matter.

Bacterial Duties.—It is a common statement that "No one ought to buy a pound of nitrogen with 11 pounds of it in the air over each square inch of ground and the legumes to take it in for us." The foundation of such a claim is correct, but peculiar factors, bacteriologically, enter in.

As explained in the last paper the nitrogen has to go through several forms before it can be used, the bacteria being responsible for every change.

(Continued on Page 47.)

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Through Calfhood to Beef.

[Written for the PACIFIC RURAL PRESS by
W. M. CARRUTHERS.]

The time of the year is fast approaching when the breeders of registered cattle, especially the beef men, are about to look over their September and October calves for prospects to be shown at the coming fall fairs.

The plan to allow each calf to spend the first three months of its life with its mother has been universally adopted for several reasons: First, to allow nature to put the digestive organs in right shape for future development and, second, to allow the calf enough time to show its owner whether it is worth while to expend the feed and care necessary to put it in the show ring.

Selective Methods.—When the selecting process starts the first calves to look over are the ones whose mothers have formerly produced something of showyard material. Later it is well to look over the herd to see if any of the other matrons have nicked well with the new herd bull. All cows differ generally in their offspring from a change in the herd bull.

The writer well remembers at one of our national shows two females from the same dam but a different sire, coming together for the grand champion of the breed, and the difference was so clear to the judge that the award was easily made, demonstrating the better prepotent qualities of the one herd bull.

It is thus well to look very closely among the calves before determining a final choice as it has occurred many times that the best calf in the herd never got a chance to make good. It is the first twelve months of the calf's life that either makes or breaks it in its future development as a mature animal.

Essential Characters.—There are several very distinct features which must be outstanding in any calf before it can reach the standard where feed and care will make it a credit in its respective breed.

Breed character is an absolute necessity before a selection can be made as many a ribbon has been lost and won on this very point. Two animals equal in confirmation and development can face a judge and the one with the most character will every time be successful.

After the character of the calf has been settled the next points are constitution and well-sprung ribs, points very essential towards future development.

These points must be good to enable the lungs to expand and to show a strong heart.

See the calf has four good legs below it and of a fair good length. A calf that is short-legged may be a great success in its calfhood days but it will never make a first-class matured animal. It must have leg enough to assure it enough size for good future development.

Quality.—Quality and well-knit ribs are features which ought to be well looked after, as style and attractiveness to the eye are very essential for future success. A calf with an open shoulder or an open rib is not a very satisfactory prospect to continue along with. As the calf becomes older the gap will increase and the shoulder grow coarser. An open rib is an indication for future patchiness which will become very evident when heavy feeding is practiced.

When selections have been made there should always be a few more than the required number. Generally some one will not turn out as well as was expected and will have to be discarded from the show herd.

Care.—Take the calves and their mothers up to the barn and there separate them, never allowing them together again except in the morning and evening, the general suckling hours. Run the calves together for the time being in a loose shed for a day or two. They will soon forget the old practice of being constantly with their mother.

Put a little grain in front of the calves in a box about two feet from the ground. It won't be long until they will be eating it. A few oats either ground or whole will do.

When the calves have quieted down and have become acquainted with their new environment, run them in a little pasture through the day and

also through the night if the weather is favorable. Good fresh air is an appetizer. Confinement is a disease breeder of the worst kind and is considered so from all breeding and feeding standpoints.

Feeding Needs.—The feeding of calves for future development must be considered as a necessity by all breeders of pure bred livestock. The one chief aim is to develop bone, muscle and the general fleshing qualities. The production of fat is the last thing to consider. If the other necessities for development are properly considered, the putting on of fat will be a very easy matter. A couple of months before fair time is enough to accomplish this.

The necessity of nurse cows is a thing most of our breeders seem to discourage, nevertheless, they are very appropriate for calf development provided the nurse cow is a good one and is fed properly to make her produce the real value she is supposed to accomplish. Nothing beats milk, only more of it, to develop calves.

These nurse cows are often abused, kicked around and half fed. The owner expects her to



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milk well anyhow. Try this kind of method in running a dairy herd and see how long it will remain profitable. Why use the nurse cow so and expect her to respond profitably? When nurse cows are used to rear a show calf be good to them; feed them the best milk-producing feed you have and then consider whether they pay or not.

Care of the Dam.—Never dry up the mother of a show calf simply because her place has been substituted by a nurse cow. Let the calf suck her mother for at least seven months; it will develop her milking qualities and the next year a nurse cow may not be needed. The keeping of the mother milking is also an inspiration and consolation to it while with her and enables the calf to become gentle more readily.

One of the main object lessons in producing better and healthier calves is to secure as much cheap milk as possible for them. After the calf has been taken care of in the milk line, the little feed required to bring it up to ten or eleven months old will not need to be much. A little oats and bran, two-thirds oats and one of bran and the last two months a third ground barley added will do the trick. A pinch of oil-meal or treacle mixed with the feed are good conditioners and will be well paid for later.

Handling.—The handling and breaking of the calf is a very important feature in its life. Great care should be exercised in this manner. Many a calf has a high-strung disposition and can be ruined very easily if wrong methods are applied or the wrong men made to do the work.

As soon as the calves have been suckled allow them to run to their shed or stall to eat their little feed. This is the time they want it and it is not good policy to work against nature.

When they are feeding go amongst them and get acquainted; it won't be long until they gain your confidence. The battle is then half over. From then on you can put a halter on them and teach them to stand tied. Get better acquainted by using a soft brush on them and here is where the writer differs with a good many of our later-day fitters.

Grooming.—The writer's plan is not to use a currycomb only when absolutely necessary. Use a soft brush and do no washing. Just ahead of fair time one thorough washing is all that is necessary. If such a practice is adhered to a nice coat of hair will be the result.

Every time a currycomb is used and some one gets to scrubbing and washing the calf they are spoiling the coat. These remarks are from practical experience and it has been the pleasure of the writer to handle many a good one with splendid results and this has been the usually grooming method adapted.

Training.—After the calf has become thoroughly acquainted with its feeder, the breaking of it to lead and stand to show itself will come very

easily. This must be done well. The first lesson to lead can be made by its mother's side or some other well-broke animal. Never get in front of the calf and try to pull it along; stay at its side. This manner of action may be a little exasperating at first but when it is well broke to lead, its teacher will be very much gratified.

Next get the calf to stand perfectly. Place its feet with your hand in the position wanted. It will soon know what you want. Next teach it to give you its foot like a horse. When a calf is thus broke its feet can be trimmed easily and in after life when it becomes fully matured the worry of feet trimming will be done away with.

The great Hereford bull "Dale," who is twice champion of the American continent, never had to be put in stocks or raised with a sling to have his feet trimmed. He had been trained by an expert and would hold up his foot whenever ordered by his feeder.

Shaping the Horns.—If the horns of the calf have a tendency to grow up, take a knife and pare them underneath to the quick for a while; they ought to soon revert back to their right position. Should this fail use a lead weight on the point of the horn which has a tendency to go wrong. This will usually fix it properly.

The fixing of these little things when the animal is young will show later that the eye of the fitter was ever looking to the thing beautiful, which in Judge Peter Shield's opinion, is necessary in all kinds of livestock.

Should the calf be a little along the thin haired kind, which is usually quite numerous in certain beef breeds, take a pail of water, dip a brush in

it, then shape the brush over the calf's back until all the hair is slightly dampened. If this practice is kept up every day a nice coat of hair can be grown on almost any kind of a calf.

If blanketing is practiced at all in fitting calves for show they must be made of very light material and used chiefly to keep off flies and prevent dust from getting on the calf's coat. Heavy blanketing is an injury to show cattle more than protection. It usually creates an irritation in the flesh and trouble generally follows.

Feed Troubles.—Should at any time of the calf's life it would refuse to take all the milk it usually had been taking, cut its feed off for one day. If this does not bring back its natural appetite cut its milk ration in two for a day or two, allowing it all the nice hay or grass it cares to eat. Nine times out of ten this will bring the calf back to its natural state.

Use as few medicines as possible in raising calves for show purposes as every time a physic is applied the calf is knocked back two weeks in its growth. The best method for putting a calf back on its feet when it once goes off is to let it skip a meal every once in a while. In this way the growth of the calf is not in the least retarded and the digestive organs will usually right themselves.

In this article the writer has endeavored to bring the show calf up to one year old and in a later issue of this paper he will try and take the calf from when he has become a year old until he crosses the two-year-old mark and so on until the matured stage is reached.

PUMPKINS FOR FATTENING HOGS.

To the Editor: Is it advisable, in fattening hogs, to feed pumpkins with corn? I have heard it said that pumpkin seeds contain an acid which has a bad effect when the pumpkins are fed at the same time with corn, and would like to know, on your authority, whether this is really so.

How do mangel wurzels compare in food value with corn, wheat bran, middlings, and such concentrates? Can you tell me what is a fair average price for mangel wurzels, per ton?—HUGH CORNSTOCK, Santa Rosa.

ANSWER BY CHAS. GOODMAN.

We do not deem it advisable to feed pumpkins to hogs either with or without corn during the fattening period.

As to pumpkin seed containing acid that is injurious to hogs when fed with corn, we know nothing as we have never fed corn and pumpkins at the same time.

Pumpkins are so largely composed of water that we consider them comparatively worthless as a fattener. If pumpkins are fed to fattening hogs in large quantities they will have a bad effect on both the bacon and lard.

It has been demonstrated time and again that corn is one of the best feeds for hog fattening. About all that could be expected from mixing anything with corn would be an improvement in the flavor of the pork.

Some good authorities claim that the best flavored pork and bacon can not be produced by feeding any one feed alone and our experience leads us to think this correct.

We have fed molasses feed in combination with barley and wheat middlings and in so doing produced bacon and ham of very superior flavor and are inclined to think a mixed feed a better fattener than any one feed. However, we would not recommend pumpkins in any combination for fattening hogs.

We depend upon carbohydrates as a fattener and not upon protein. Chemical analysis show that between Indian corn, Egyptian corn, barley, rice, wheat, shorts and wheat middlings there is but little difference in the value as a fattener. We can not see any reason why watery pumpkins should be mixed with any of these old-time and tried feeds. We have never fed manzel wurzel beets to hogs and never thought of such a thing for fattening purposes, but suppose they would be excellent to feed growing pigs in place of green grass or alfalfa. We know they are excellent for chickens in the absence of green feed.

We have no knowledge of the market value of mangel wurzel beets.

Williams, Cal.

GOOD FEED CALLS FOR GOOD COWS.

[Written for the PACIFIC RURAL PRESS by
W. M. CARRUTHERS.]

As the date of the Panama-Pacific International Exposition draws closer and the development of our State becomes more evident many of our rich men are turning their minds toward the development of their land. The profits in dairying have been shown them so often on paper that the capital required to start up a dairy farm would not be large enough to affect any other business they are in by men who are in the land business. Many beginners in this business believe that if they purchase a lot of cows cheap and then secure a high-class dairy bull belonging to any of the dairy breeds they can soon grade this herd up to where it will return fairly good profits. This is all a mistaken idea. A cheap cow is always a cheap cow and her progeny will take a generation before they can be really rated high-class milkers. Suppose a cow worth \$250 can produce 12,000 pounds of milk worth \$120 in one year, it will take in the neighborhood of \$60 a year to feed this cow. That would leave \$60 profit or 24% on the investment. Take another cow worth \$50 (and they can be found everywhere) producing 4000 pounds of milk worth \$40; the cost to keep this cow may not be as much as the cow giving 12,000 pounds of milk but at the least she will cost \$40 per year for her feed and care. Where, then, is the profit from this \$50 cow? The trouble with most of us is that we have been working with inefficient machinery. We have not been able to persuade ourselves that we can afford to pay a hundred dollars for a good cow when the stock that we have could not be sold for more than fifty or sixty dollars a head. As a matter of fact we cannot afford to put valuable feed into our cheap cows. Experience and the use of the Babcock testing machine has shown many of our successful dairymen that in keeping cows that would only give two hundred pounds of butter fat per year they were losing money and that these cows were only good for what they were worth to the butcher. Our agricultural college, dairy papers, testing associations and dairy bureaus are fast educating our farmers along dairy lines. They are demonstrating that dairying is a business which must be handled in a practical way to make it a success. If beginners get side tracked when they start out in the dairy business it will take years of up-hill work to get on the main line.

WINTER CARE OF COLTS.

Although we do not have in California valleys and foothills such low temperatures as Dr. Lipp of the University of Minnesota contemplates in his suggestions for winter care of colts, it should be remembered that stock, like people, can get mighty chilly and miserable even when the thermometer seems to be very comfortable. Therefore these points are worth considering:

With the winter season at hand comes the increased necessity for the proper care of the spring colts. This is a matter of sufficient importance to demand careful attention. Two fundamental principles must be kept well in mind, because upon their observance depends to a very considerable extent the success or failure of the project.

In the first place, the quality and quantity of feed demands attention. The colts are growing and developing animals, whose value at maturity is measured to no inconsiderable extent by the degree of development of bone and muscle. Satisfactory development can only result when proper feed is supplied. The formation of bone and muscle require rations containing the so-called tissue builders in large quantities. In a grain ration of oats are combined the necessary elements for the formation of bone and muscle better than in any other single grain, and for this reason oats form a most necessary part of the ration. Other grains and mixtures may be substituted, but none of them are better than oats. However, if other rations are fed, remember that the demands of the animal require a quantity sufficient for tissue formation as well as for energy and warmth. To feed sparingly is to interfere with development to such an extent that its effect may remain in evidence throughout the life of the horse.

Daily exercise is the second fundamental principle in the successful wintering of colts. Only

failure can result even if tissue building material is fed in sufficient amount, but the daily exercise is insufficient. Not only is the maintenance of vigorous health impossible, but the development of newly formed tissue is seriously hindered. It is common knowledge that any tissue not in daily use soon becomes weak, and if the disuse continues long enough, becomes practically worthless. How can strong muscles be developed except by exercise, and how is exercise possible when no opportunity is provided for it? Time and place for daily exercise should be as regularly provided as feed. When this is done other injuries will be eliminated, and the probability of the colts reaching maturity as perfectly sound horses is correspondingly increased.

FEEDING POTATOES TO SWINE.

On account of the heavy potato crop and the low market price, many people are asking about the value of spuds for stock feed. The Animal Husbandry Division of the State College at Pullman, Wash., has received daily during the last few weeks several inquiries of this sort, and replies in this way:

On account of their large water content, potatoes alone are not suitable for feeding swine. Experimental results at many stations have shown that one pound of grain is equal to about four pounds of cooked potatoes or four and one-half pounds of potatoes raw. On this basis anyone can figure out the probable return of potatoes when fed to hogs. They must be fed with grain to return satisfactory results. Probably not more than four pounds of potatoes should be used for each pound of grain where rapid gains are desired.

As is well known, potatoes should be cooked, using as little water as possible, mashing them and mixing in the grain while the potatoes are hot. A little salt should be added and the mixture fed to the hogs while still warm. If the grain is corn or barley, the addition of some tankage should increase the gains and decrease slightly their cost.

[It should also be remembered that the cost of cooking and handling may easily be more than the feeding value of the potatoes.—EDITOR.]

INTERNATIONAL WINNINGS.

At the International Live-stock Show just passed, a number of the Eastern breeders who are now advertising through the columns of the RURAL PRESS, made some wonderful winnings. In the Shorthorn classes, White & Smith of St. Cloud, Minnesota, owned and showed the grand champion female of the show. In the bull classes, Professor Curtiss of Ames, Iowa, owned and showed the grand champion bull. In the Hereford classes, J. P. Cudahy of Belton, Missouri, owned and showed both the grand champion bull and grand champion cow of the breed. In the same breed Overton Harris & Sons, Harris, Missouri, bred and owned both the junior championships in the cow and bull classes. Any of our subscribers who expect to show at the 1915 Fair and expect to fill up their herds with some high-class animals would do well to correspond with any of these reliable Eastern firms. At the same show, the State Farm at Davis, showed the winning Southdown wether lamb which was conceded to be the best fat lamb on the ground and in the remarks by the Breeder's Gazette it was termed "The sensational lamb of the show."

W. M. C.

DAIRYMEN PREPARING BILLS.

As announced some time ago in the PACIFIC RURAL PRESS the State Dairy Association and California Creamery Operators' Association are preparing a bill to present to the legislature making a uniform dairy law for municipalities. The joint committee of these organizations has already met and prepared a preliminary draft of a dairy law. This will be gone over carefully and published in whole or in part when gotten into final shape. The preliminary draft of the bill was made by the secretary, S. A. W. Carver. The matter of tuberculosis is to be attended to according to the lines followed in the Press. Some minor bills relating to the dairy industry are also being prepared.

Drainage and Alkali Reclamation.

(Concluded from page 10, last issue.)

[By FRANK ADAMS, Irrigation Investigations, U. S. Department of Agriculture, at the Fresno Fruit Growers' Convention.]

FRESNO DRAINAGE SURVEY OF 1902.—In 1902 a general drainage survey was made in the vicinity of Fresno by Professor O. V. P. Stout under the general direction of Mr. Elwood Mead, then Chief of Irrigation Investigations in the Department of Agriculture, in order to understand the engineering problems involved in the proper drainage of this region, the necessity of drainage being so evident that it was assumed. As a result of this survey two general plans for the relief of about 18,000 acres south and west of Fresno were prepared by Mr. C. G. Elliott, then Chief of Drainage Investigations. One plan involved eight parallel open drains one-half mile apart extending from the eastern boundary of the district west to an intercepting drain leading to Fresno Slough, twenty miles distant. The second plan considered dividing the proposed drainage district into eighteen sub-districts, averaging in size from 800 to 1,700 acres. Parallel lines of tile from eight to twenty-two inches in diameter were to take the place of the open drains in the first plan. Instead of being carried twenty miles in a drainage channel leading to Fresno Slough, the drainage water was to be pumped from collecting sumps to the various irrigation canals. The estimated acre-cost of the tile system was \$13 to \$14, with that of the open system possibly a little larger. No action was taken by the Fresno farmers as a result of this survey and report.

EXPERIMENTS ON THE DORE AND BAKER TRACTS.—In 1906 additional work was undertaken by the Irrigation Investigations and the State Engineering Department of California in the Fresno lands needing drainage, the purpose this time being to show experimentally the benefits of drainage. Two tracts were selected for experiments, one of twenty acres at North and Elm avenues, known as the Baker Tract, and one of forty acres on the farm of Mr. John S. Dore, three and one-half miles west and one-half mile south of the Baker Tract. The Baker Tract is underlain unevenly with hardpan and the accumulation of alkali was thought to be as heavy as on any other tract in the affected district. About one-half of the tract had never produced crops of any kind and practically no profits had been obtained from the rest for several years. The Dore Tract, on the other hand, was a finely kept vineyard that had been very profitable but that had begun to fail rapidly, about one-fourth of the vines being already dead.

The plans of the experiments on the Baker and Dore tracts and the immediate results obtained are fully discussed in Bulletin 217 of the Office of Experiment Stations of the Department of Agriculture. Both experiments involved the laying of main and lateral tile lines, ranging from eight inches down to four inches in diameter, and leading to sumps from which the drainage water could be lifted by electric pumping plants and carried to nearby irrigation canals. The least depth at which the tile was laid was 3.5 feet, the average depth being 4.5 feet and the outlets into the sumps being six or seven feet below the surface. The local difficulties encountered are fully detailed in the bulletin mentioned, including the necessity for blasting the hardpan on part of the Baker Tract at a cost of about \$10 to about \$14 per acre. After the tile and pumping systems had been completed both tracts were flooded to a depth of about twelve or more inches. The Baker Tract was flooded intermittently through the spring of 1907. On the Dore Tract flooding occurred for ten days, the first spring, and from the following fall to the first week in March, 1908.

RESULTS.—Following the flooding and the operation of the pumping plant on the Baker Tract a marked improvement was apparent in the color and tilth of the soil. Two small tracts were planted to muscat vines practically all of which lived and made a healthy growth throughout the first summer. The remainder of the tract was seeded about June 1st, four acres planted to sorghum growing spotted patches of fodder eight or nine feet high and yielding 1.5 tons per acre, the spotting being due to the presence of hardpan on the one hand and to the breaking up of some of this hardpan by blasting on the other. This tract has not been flooded since the time of the experiment in 1907 and 1908 and the pump has not been operated by the owner of the tract since 1909. Neither has the owner made any effort to cultivate or crop it since then, with the exception of seeding a small portion to barley the first season after the experiment was concluded by the Irrigation Investigations. At present the tract is abandoned to Bermuda and salt grass pasture and to the casual observer indicates a total failure of the experiment. But an examination of the tract, interviews with those who are familiar with it, and interviews with the owner suggest the very evident conclusion that in spite of the exceedingly poor soil involved, largely due to the unfavorable hardpan condition, the plan of drainage was entirely satisfactory and that if it had been persisted in by the owner, instead of encouraging a return to Bermuda



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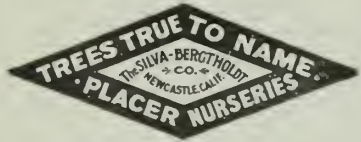
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pasture, a permanent improvement would have resulted over at least a portion of the twenty acres. Rather than demonstrating the failure of drainage in this section, it is believed that the experiment on the Baker Tract shows, first, that there are difficulties connected with drainage of the very poor land, and second, that thorough and persistent farming is as necessary as a good tile system.

DORE TRACT.—When the experiment was undertaken on this tract in 1907 it was estimated by the owner that at the rate the vines were then dying the entire forty acres would become unproductive from the rise of ground water and alkali within a few years. Of 1,000 young vines set out in April, 1908, after flooding and draining, 95 per cent made a very strong growth and lived. In addition old vines that had practically ceased to throw out shoots began to do so, although these nearly-dead vines ultimately succumbed. The old producing vines made a more healthy growth than for several years, remaining green throughout the summer instead of turning yellow with the first hot days of June, as before. According to Mr. Dore, an equally marked effect was then and has since been produced on the quantity and quality of the yield. The experiment was concluded by

the Irrigation Investigations in 1909 but the tract has been re-visited by the writer within the present week. The land has been neither flooded nor irrigated since 1908, and no new plantings of vines have been made later than one year following the period of the experiment. Some more of the old producing vines have died, several acres of the land thus bared being planted to pomegranates. Some of the pomegranates have also died, but those were located alike in the land most free from and most charged with alkali, and the owner attributes their failure to causes other than alkali which he can not explain. But the young vines that have been planted and that have not been injured by other causes have apparently made a highly satisfactory growth and beyond any question whatever demonstrate the entire success of the experiment. Some of the old vines are still dropping out in patches and it is evident, so far as conclusions are warranted from casual observations, that the land, which has had absolutely no surface water since the experiment was in progress in 1908 other than light precipitation, needs additional leachings. Owing to the continued low price of raisins Mr. Dore has not been encouraged to replant his vineyard where vines are missing, believing that possibly alfalfa will be more profitable, considering all circumstances. Consequently results are not available for young vines over the entire forty acres. Not one acre of Mr. Dore's tract has, however, gone back to pasture, for with the exception of a brief period each season when the ground water is highest throughout the district, the drainage pump has held it down to a safe level, in spite of the high level of ground water in all of the surrounding territory.

DRAINAGE ON HANSEN FARM.—During the progress of the drainage experiments on the Baker and Dore tracts part of the work was done, at wages, by a comparatively young farmer of the neighborhood who had seen his father's forty acres grow from a land of tarweeds to a \$20,000 vineyard and then back again, after the rise of ground water and alkali, until for an entire year prior to 1907 it was carried on the market without a buyer for about one-fifth of the former estimated value. What this farmer got out of his connection with the Baker and Dore tracts was more than his wages and his contract price for pumping water during the construction period. He got a knowledge of how to drain and an appreciation of the results that could be made to follow. He already had twenty acres of his own and about \$600 in cash and with the assistance of the Irrigation Investigations in laying out his system set about draining his own twenty acres, eighty acres on the home ranch, and an additional twenty acres adjoining which he purchased. Joining his neighbor on the south, whose forty-acre tract was in the original Taft-Hanson experiment of the Bureau of Soils, he changed the original position of the Taft-Hanson pumping plant, advanced \$300 to the local power company to get their power line made accessible, and zig-zagged a six-inch and eight-inch line of tile through the property from northeast to southwest to the collecting sump and pumps. One six-inch lateral was run north into a corner of the sixty-acre home place; and an eight-inch lateral was run east to tap the land of his co-operating neighbor.

This home-made drainage system on the Hansen farm was laid in October and November, 1908. In 1909 ten acres were leveed, flooded, and seeded. This was added to by eight acres in 1910 and by nineteen acres in 1911, and the work of flooding an additional forty acres will be started as soon as water is available for the purpose in the canals. The acre cost of the drainage system was \$12 on the F. W. Hansen 40 acres, and \$15 on the re-

maining 80. Nineteen of the 20 acres purchased on borrowed money, in 1908 in 1912 yielded 7 tons of alfalfa per acre, according to the figures of the owner, which sold for \$10 per ton, or a total of five times the original cost of the drainage system for the same area. This land was seeded in 1909 and 1910. Another 19 acres seeded

in the spring of 1912 and lying at the far diagonal corner of the tract, in the same season gave a measured yield of 90 tons of alfalfa, which if sold at the price brought by the alfalfa from the other 19 acres, viz.: \$10 per ton, would have paid the purchase price of the 20 acres of which

(Continued on Page 46.)



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How Co-operative Marketing Helps.

(Fruit growers who are in touch with the markets will know that apricots are nearer cleaned up than anything and in better shape commercially this season than any of the other dried fruits. It appeared to us that one reason for this evidently was the stabilizing influence of the dried fruit associations, of which the Ventura and Orange County Associations, who handle only apricots, had their first good season this year. We, therefore, requested Mr. H. Zander, manager of the Ventura Association, for an account of the marketing results this season and are pleased to print the following:

The letter deserves close attention at this time, especially on account of the organization of a state-wide dried fruit association. Our readers will remember that the organization and methods of the Ventura Association was described last summer in these columns.—D. J. W.)

To the Editor: Referring to your favor of the 9th, I have no doubt that the existence of the different dried fruit associations in the State has kept the price on dried apricots much more stable than has been the case in the past, especially so by the work done by the two associations in the south, the Ventura County Dried Fruit Association and the Orange County Dried Fruit Association.

It is an established fact that the northern packers of dried fruit, before the existence of these two associations, have been able to send their buyers into the south and purchase apricots at considerably lower prices than northern growers were willing to sell at. Here in Ventura County alone we have about two hundred apricot growers, a majority of them with very small acreage, and without any organization it was very easy for the buyer to influence some of these growers to sell at their prices. As soon as a few of the growers have sold naturally others follow.

The forming of the association has changed this method, the association being in direct connection with the Eastern and European trade and keeping well informed on the supply and demand, are in as good a position to gauge the market as is the packer, with the advantage of not having to speculate on the purchasing price, as they have the apricots actually on hand.

LOW PRICES PREVENTED.—On account of the large crop of apricots this season the management of this particular association decided that an average net price of eight cents would be a fair remuneration, and so started to make sales at prices that should net the association members about eight cents. This was some months before the apricots were ready to be dried. The packers, through their different buyers in the apricot districts of the State, tried to purchase at a less figure, but mainly on account of the action taken by the associations were unable to do so and had to base their sales on the same figures as the association. The European trade, finding prices not fluctuating, made heavy purchases in apricots, though the trade in the United States purchased lightly, hoping to be able to purchase at a lower price later on, in fact openly stated that with the large crop coming in there would be sufficient growers willing to let go at the lower prices, as had been the case in previous seasons of large crops. This time, however, they figured without taking into account the work of the association.

During September, by refusing to purchase, the Eastern trade expected to secure apricots at a lower figure, and some of the packers, having been able to induce a few of the outside growers to sell at 7 and 7½, were in a position to sell a few cars at lower prices. Most of the growers, however, held for better prices, strengthened in their stand by the success of the association in securing the price that they felt the demand warranted, and the trade, finding that they were unable to purchase at a lower figure, readily placed their orders at about the prices established earlier in the season. As stated by some of the largest jobbers in the country, it is not so much a matter of price to them, as the knowledge that the prices paid by them will be maintained, and the assurance that their competitors will not be able to purchase at a lower figure than themselves.

NET RETURNS.—The Ventura County Dried Fruit Association was able to make complete returns to its members by November 20th at an average price of 7½ per pound net. Taking into consideration that the association provided its members with sacks free of charge, and sulphur at wholesale prices, its returns of 7½ really means as much as 8¼ cents, and as the average returns to the growers of Ventura County not in the association was only 7½ cents, the association member averaged about ¼ cent per pound more than those growers not belonging to the association, not taking into consideration the amount of time lost by the latter in looking after the sale, or the money expended for insurance, storage, etc. As stated by the secretary of our association, we cannot too strongly impress upon the readers of this article that great truth which we members all know, that association prices and outside prices compared are not a true test of the efficacy of the association marketing, as the steadying effect upon the market, of large quantities held under one control, help the outside grower as well as the association member, so it is not possible to state just how much benefit has actually been derived from co-operative marketing.

H. ZANDER,

Manager Ventura County Dried Fruit Association.

Santa Paula.

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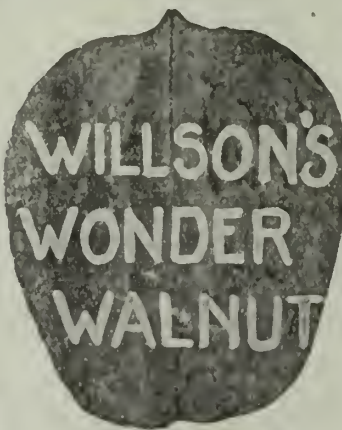
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HOW DEEP IS A MULCH?

To the Editor: That I am a subscriber to your paper of only some two months' standing is my misfortune, rather than my fault. I didn't know of your paper earlier. Now, when I see it among my mail, I have much the same feeling that a hungry man experiences when called to a substantial meal, well-cooked and nicely served. That's all of that.

And now I want a little light please. With the exception of Californians, all writers on "dry-farming" with whom I am acquainted, seem to agree that a "mulch" three inches in depth is sufficient for practical moisture conservation. Californians demand from five to six. Now, I can quite readily believe (I am wholly without practical experience, by the way, but, like many others, am trying to prepare for it) that a six-inch mulch would furnish a more effective protection against evaporation than would one of three inches or less. But, it seems to me, that its effectiveness would be equally marked, if we regard it as a proof to protect the soil under it from getting wet.

Leaving out the north coast section, how

many rains are there in a normal year in California that would penetrate a six-inch layer of dry soil? Or, look at it another way; take the case of a section where the normal rainfall is twenty inches, distributed over some four or five months. Renew the mulch after every heavy rain, and how many inches out of the twenty would have passed through the "roof?"

And here's another point: Many kinds of seed, we are told, should be planted not to exceed one inch, some even less than that. Now it would be clearly absurd to measure that inch downwards from the bottom of the mulch, but, on the other hand, how could we expect seed to germinate in the dry dust of the surface?

If left to my own devices and debarred from recourse to such a mentor as the PACIFIC RURAL PRESS, I should follow a line something like this: Plow before, or as early as possible in the rainy season; maintain a shallow mulch throughout such season; after rains are over for the year and seeds are well started, get a five or six-inch mulch established as soon as possible.

I have recently bought a small farm in California. Hence my deep interest in the above matter. Will you please tell me if I am wholly "at sea," and, if so, help me ashore. W. F. COLLINS.

Battle Mountain, Nevada.

[You are ashore all right. No one thinks of a deep mulch in California if the rainfall is large enough to count upon. Where rainfall is so small as to be negligible and where irrigation has to be used all the year, the fullest moisture conservation is worked for by deep cultivation. If you have rainfall coming, work shallower (or grow a cover crop) and go down to the limit at the beginning of the dry season.—EDITOR.]

WORKING FOR A GREATER STATE FAIR.

The chamber of Commerce of Sacramento, Inc., has sent a communication and copy of resolutions to all of the chambers of commerce, boards of trade and boards of supervision throughout California for the purpose of giving a comprehensive idea of the movement to make the Sacramento State Fair complete educational and representative of the great resources of California. The following outlines the proposition:

A movement has been begun with a view to providing the California State Fair with adequate facilities, both of grounds and buildings, to the end that the State may have such an annual exhibit of its product as will cause every true Californian to regard the institution with pride.

The board of directors of the State Agricultural society say that it will take between \$700,000 and \$800,000 to place the fair upon a proper basis and the purpose is to secure the necessary funds, either by appropriation from the State legislature or by bond issue.

The State of Texas, for example, has a state fair which is provided with more than \$2,000,000 worth of permanent buildings, in which five States exhibit, which is of such a character to annually attract nearly a million visitors, to see which 142,000 people paid admissions in one day in 1912, and which netted \$62,000 profit in 1912.

The State of California can and should do as well, or better than this. The movement has been organized and is being conducted under the supervision of the State agricultural board and has received the hearty approval of the California Development Board. A committee, known as the State fair advancement committee, has been organized and is truly representative of both the agricultural board and the entire State.

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DRAINAGE AND ALKALI RECLAMATION.

(Continued From Page 43.)

the 19 acres is a part plus the original cost of the tile drains. This land had been flooded and drained for three years prior to seeding. Of the 19 acres, 8 acres has received its entire irrigation water—it was irrigated heavily four times in 1912—from the drainage pump, sustaining so far as is possible with one season's work the conclusion of those who have from the first maintained, after numerous analyses of the drainage water, that the drainage water here is entirely satisfactory for irrigation. Starting in 1908 with 40 acres and a debt of \$1,800, this farmer, by applying knowledge he had gained through his connection with the Baker and Dore experiments, has in less than five years cleared his debt, built one barn and repaired another, and maintained a family of seven children from the profits of land that before drainage had an approximate value, as estimated by a conservative Fresno banker, of about \$50 per acre. Of the land drained by the co-operating neighbor, 16 acres of alfalfa seeded in 1910, yielded an estimated 100 tons in 1911, and an estimated 112 tons in 1912. A near-by 20 acres which is

underlain with tile, but from which no water has been pumped for three years, is in salt and Bermuda grasses, yielding at the most, seven or eight months of pasture at the rate of about two acres per cow.

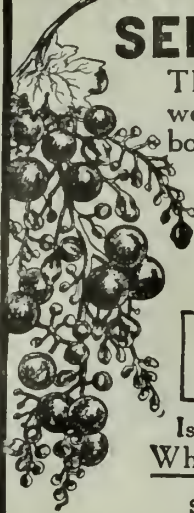
CONCLUSIONS.—There lies in the general neighborhood of Fresno, as determined by surveys and studies of the Department of Agriculture, something like 200,000 acres of land now needing or coming to need drainage. In one form or another the story has many times been told of the well-kept avenues lined with beautiful shade trees which lead out from this city to the districts in which only dead stumps and Bermuda and salt grass pastures mark the places where valuable orchards and vineyards once flourished. Whether the former value of these orchards and vineyards was \$350 per acre, as has been estimated by some writers, or only \$200 per acre, as was yesterday estimated by a Fresno banker who has lived here many years, the social and economic changes that have come to the most badly affected districts are clearly evident. Whether these seeped lands, undrained and in pasture, are worth over \$100 per acre, as some of the owners claim, or only \$50 per acre, which is the highest price one conservative investor says he is willing to pay, it is plain that this fine city of Fresno could not long prosper if the surrounding farmers obtained no higher returns than can come from salt and Bermuda grasses. It is true that at the recent prices of raisins, many vineyards may face a loss on a season's operations, but what of the Bermuda grass grower when butter fat gets back, say, to 20 cents a pound? With the grass profits from such a price, how many pianos and automobiles can the Bermuda and salt grass dairyman buy after paying for the alfalfa his herd needs when there is no feed in the pasture? Nor is the question of drainage of interest only to the dairyman. How long can the real estate of Fresno City maintain its present high value, how long can there be fine libraries and fine stores here, how long can the county continue to hold its reputation for wealth and productiveness if the old landmarks among the farms shall permanently give way to the leaning gate-post and the decaying buildings of the alkali affected districts? It is true that large areas about Fresno are not as badly affected as the sections in which experiments have been made, and are producing heavily, but it is also true that some of these also may ultimately be affected.

That a feasible plan of drainage for the too-moist lands about Fresno is bound to come can not be questioned. The citizens here have frequently asked the assistance of the office with which I am in my small way connected, and the response made has been fully commensurate with the means of those in charge. Possibly the office can be of no further help. The experiments outlined in this paper, however, additional experiments in progress at the instance of the local power and irrigation interests, and the successful resort to drainage on the George C. Roeding and the Sunnyside tracts, seem to furnish all needed demonstration of the feasibility of removing the injury that has been done. Possibly difficulties not now foreseen will arise in carrying out larger undertakings than those now under way, but those who are professionally thoroughly familiar with drainage and alkali reclamation throughout the West, as well as here, declare the drainage of the sections about Fresno needing it not only feasible and practicable, but fully warranted by the results that have been obtained elsewhere.

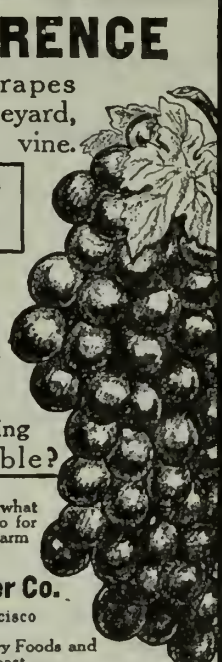
The formation of one or more drainage districts about Fresno has frequently been suggested. In fact, our drainage district act was drafted with conditions here especially in view. It is believed that the time has never been more opportune for action and accomplishment than now.

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SOIL BACTERIA AND FERTILIZATION.

(Continued From Page 39.)

The bacteria let the legumes take in the clover. The bacteria make the proteids, the matter containing nitrogen, into humus by several stages. They change the humus into ammonia compounds, and lastly they change the ammonia into nitrates. Not until the nitrogen is a nitrate can the average plant take it up. Since the bacterial action, except the very first one named, practically stops in winter, and the natural vegetation absorbs most of the nitrates formed by fall, there are no great surplus of nitrates in the soil when the spring growth starts, and the spring growth, like all quick growth, takes lots of nitrogen.

Now a temperature that makes a tree grow will also start the bacteria, and some of the nitrogen in its various forms will before long become nitrates. Still, it seems logical that a small allotment of some nitrate would do good at the start, perhaps with a little ammonia fertilizer, so as to get the very best growth possible, and many citrus growers think that results justify the practice of applying nitrate of soda or lime in the spring after growing vetch during the winter.

FAVORING INFLUENCES.—Just as cold retards bacterial action, so does excessive heat. By the time that the temperature reaches 100°, most soil bacteria slack up work until it gets cooler. Shaded by trees and with good moisture supplies, our interior soils may be cooler than the air and let the bacteria flourish, even in the hottest days in the interior. In fact, considering our 24-hour temperatures, California seems very favorably situated for bacterial growth.

California soils also are especially suited to bacteria by chemical and physical condition, but this and a few other points on bacteria will have to be considered later.

CALIFORNIA WHITE WHEATS.

The superiority of California wheats over all others in their gluten content and in other ways is the contention of Professor G. W. Shaw. Various local varieties and their values are considered by Professor Shaw in a bulletin issued for the University Press.

The wheat grown generally in California will make as good, if not better, bread for the average housewife than that grown in the Middle West. The varieties most generally grown here are the Little Club, commonly called Salt Lake Club, White Australian, Washington, Bluestem, Sonora and Propo. All of them ordinarily produce a white flour which, by its cleanly appearance, can be readily discovered by the buyer. Although the wheat is white the bread made from

this wheat is darker than the tinted flours from winter wheats.

Another conclusion which establishes the high value of the California wheat is "that the higher the gluten the larger the volume of loaf, other things being equal," as outlined in the report. Each form of wheat growth is described in one of the publications issued by the agricultural department. The investigation of relative local wheat values is being continued at the University farm at Davis.

AIMS OF THE COLLEGE OF AGRICULTURE.

At a recent luncheon of the Commonwealth Club of California, Dr. Hunt, leader of agriculture in the University of California, said:

As Dean of the College of Agriculture of the University of California, I represent one of the agencies of the State for the promotion of the public welfare. I have not attempted to discuss with you anything like a complete and well-rounded agricultural program, but rather to pick out by way of illustration three or four items of immediate interest at this time. The staff of the College of Agriculture consists of some ninety-odd persons pursuing some twenty-five or thirty, more or less, distinct lines of work. We are concerned in the control of insect enemies and plant diseases. We seek to control cholera in hogs and tuberculosis in cattle and other animals. We aim to protect the farmer in the purchase of his seeds and his fertilizers. We carry on investigations to discover the best methods of raising hogs, alfalfa, barley, beans, wheat, olives, figs, oranges, lemons, chickens, and every other economic plant or animal.

But after all, our main motive is not to boom the raising of hogs or alfalfa or figs or lemons or peaches, but to promote the rearing of families. A type of agriculture that does not lead to a successful home must be accounted a failure. We are not primarily interested in enabling the ranchman to substitute for his \$3,000 automobile a \$5,000 motor car, but we must concern ourselves with those methods of farming that lead to the proper educational, social, moral and religious ideals. Ours is not only an economic problem, but it is a sociologic one. If we are to build here under these beautiful skies the greatest civilization the world has yet seen, we must rear the right people. We must perpetuate the race which has created this wonderful Western civilization. It is the home-loving people who inherit the earth.

Figs and olives, and cows and chickens must be made the means to an end, not an end in themselves. A successful family life is the basis of our agricultural program. We invite all agencies, Federal, State, and private, and all good citizens everywhere, to join us and to support us in this program.

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How Rich Is Milk?

[By our ASSOCIATE EDITOR.]

The fundamental point in dairying is brought up in the question: How rich is milk? It is the question that a housewife asks about the milk she buys, it is the question a dairyman asks about the milk his cows are producing. If he does not ask it he is working in the dark and is content to stay there.

A similar question is: What does a milk test mean? Or, if milk tests 3.5, or 5.5, what do the 3.5 and the 5.5 stand for? The answer to one question is the answer to another.

This is an elementary matter, nearly every dairyman knows it, yet a cattle buyer informed the writer the other day that Holsteins tested 6 and 7, although he was not sure what a 6 and 7 test meant, simply taking the dairyman's word for it. He also gravely stated that Holsteins were more profitable than Jerseys, for, although they gave less milk (?), their milk was richer (?). Perhaps others are a little hazy on similar matters and a little review of some fundamental facts ought not to be out of the way.

WHAT MILK CONTAINS.—The first thing is: What is milk made out of. Well, about 87 pounds out of 100 in the average milk is water and besides the water there are four other important materials, fat, casein and albumin, which we will put together, milk sugar and mineral matter, or ash, which is the proper term. One cow's milk may differ greatly from the milk of another and the average milk of one dairy breed is very much different from the milk of another breed.

FAT.—Fat is the thing that counts, it is what the housewife is after when she calls for "rich" milk, it is the thing that brings in the money to the dairyman no matter what use the milk is put to.

The fat, or butter fat, as it is termed, is the yellow material that makes the butter. It is the part that rises to the top when milk is left in pans or bottles and gathers other parts of the milk with it to make cream. Butter fat is not butter. In 100 pounds of butter there are about 15 pounds of moisture, a pound or so of salt, some curd, and about 82½ pounds of real butter fat. Butter fat is what the creamery pays for, the thing that they test the cream for, the thing the dairyman tests the milk of each cow for to see if she is profitable.

OTHER PARTS OF MILK.—The next important part of milk is the casein and albumin, which are about the same thing. This is almost the same food substance that is found in the white of an egg, in lean meat. It is the kind of food that is most in demand for human use, the most expensive to purchase, although in skim milk it is usually considered of little value and given to hogs or calves.

The casein is the white material, the curd, and with the fat goes to make up

cheese. The albumin is practically the same thing as casein as a food, but is almost colorless and stays in the whey. In 100 pounds of average milk there are about 3.5 pounds of casein and half a pound of albumin.

Next in importance is the milk sugar, of which there are about 5 pounds in 100 pounds of milk. It has an equal, if not superior, food value to ordinary sugar, and if that were sold at 7 cents per pound, the sugar in 100 pounds of milk would be worth at least 35 cents when used as a food like cane sugar.

The fourth important food is the ash, largely lime and phosphorus compounds, which make milk so valuable as a bone building material. In 100 pounds of milk there are about three-quarters of a pound of ash.

BACK TO FAT.—To the ordinary dairyman the above is not given great consideration, the butter fat is what is wanted, what pays the bills, and the question before us is: How much fat in the milk?

Now we cannot classify milk as very rich, moderately rich, ordinary, rather thin, and quite thin, and so on. We have got to have something definite and that definite thing is the number given to the test.

WHAT THE TEST MEANS.—Ordinary milk has about 4 per cent fat, or in 100 pounds there are four pounds of fat, it has a test of 4.00. Milk with a test of 3.5 and 3.5 pounds of fat in 100 pounds. Milk with a test of 5.5 has 5.5 pounds of fat in 100 pounds, and so on. Thus by knowing the test we know at once how rich a milk or cream is, how much fat it contains and how much the creamery should pay for it.

A number of years ago the only way to tell how rich milk was, was to let the cream rise. That is the way a housewife tells now. This is very inaccurate and we now have the Babcock test, where very simply, quickly and at very little expense, the dairyman or the creameryman can tell how much fat there is in milk or cream. This need not be described here.

APPLIED TO THE HERD.—The way of figuring out the fat a cow produces is very simple. Have a pair of scales and weigh the empty can, then after the milking is over, weigh the can with the milk in it, and the weight of the milk will be known. Say it is 10 pounds of milk at a milking.

A little of this milk is taken and the fat in it is found. If it is Jersey milk it will probably give a test of 5 or over. If it is Shorthorn milk it may test 4, and if a Holstein 3, though probably quite a little more. That test of 5 will show that there is half a pound of fat in the 10 pounds of milk, the test of 4 will show that there is 4/10 pounds of fat, and so on.

If, instead of a single cow, we applied the test to the milk of a herd it would work out in the same way. Say a dairyman kept 4 strings of cows and had all the milk put in a big vat before separating, or that he sold market milk and had it in a vat before putting it in cans.

Those cows should give about 1,000 pounds of milk at a milking. If a sample of the vat were taken and tested it would show a test of about 4.00, if it were a herd of cows of mixed breeding. That would mean 4 pounds of fat to 100 pounds of milk, or 40 pounds to the 1,000. With the butter quotation at 28 cents and the creamery paying two cents over quotation, or 30 cents, the fat in that milk would be worth 40 times 30 cents, or \$12.00, provided none were lost in separating.

It is clear that a cow with rich milk can give less than a cow with rather thin milk and be just as profitable. This is a question both of breeds and of individual cows. The method of figuring how much a cow gives all along, how often to test, and so on, will be considered later.

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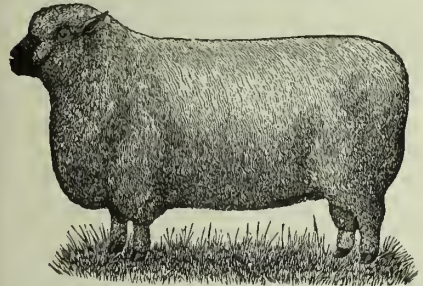
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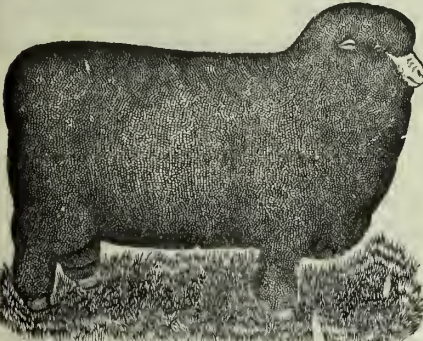
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EVIL OF PEDIGREED SCRUBS.

H. Nunn, Veterinarian Surgeon, emphasizes the fact that one has to consider the animal with the pedigree and not the pedigree alone, in a striking way in the Oregon Agriculturist. We have often claimed that the animal should give force to the pedigree rather than the pedigree support the animal. This is not attaching less importance to the pedigree—it is rather exalting it and expecting more from it. Dr. Nunn puts it this way:

We hear much, in this progressive age of horse-breeding, about the grade and the scrub stallion and rightly we should. The kind of stallion which stands for service in a district is a fair indication of the class of horses which in a few years will dominate that district, and surely this is enough to make mare-owners use the utmost precaution in selecting sires. The grade stallion does not stand in favor with the best breeders, because they all understand the value of the pedigree. There are those, however, who place too much confidence in pedigree, and are not exacting enough in the individual requirements of the horse. The scrub which does most damage in horse-breeding is not always the grade scrub, but often the pedigree stallion, whose pedigree is used as a blind to cover the eyes of the somewhat lax breeder, and also as a blanket to hide all the deficiencies of individual conformation and quality. A pure bred horse gets no inconsiderable amount of patronage by reason of his breeding. If he is a representative of a distinguished line of blood, and is himself a nondescript type, he may do a great amount of harm, because people rely on the blood of his ancestors to make rather than counteract what he lacks in conformation. Here is where the pedigreed scrub gets the opportunity to do more damage than the non-pedigreed inferior animal. His influence is greater because he gets more mares.

Now, what are the chances of pedigree overcoming, or making up for, lack of quality or individual conformation? Considering laws of breeding from a theoretical, as well as a practical viewpoint, the most direct influence upon offspring is that of its parents, and declining proportionately and regularly as generations recede one after another. Thus it was believed by Galton, and his theory seems plausible, that a colt would contain 25 per cent of the characteristics of each of its parents, 12½ per cent of each of its grand parents, 6¼ per cent of each of its great grand parents, 3¼ per cent of each of its great-great grand parents, and so on infinitely. It is closely seen that the blood of the horse a few generations back has very little effect upon the offspring. Pedigrees are mighty valuable in their place, but they can never take the place of conformation, can never be satisfactorily used as a substitute for a scrawny, flat-ribbed, light minded, coarse-haired, meaty-legged, faulty-going horse. If every animal which appears in the pedigree were noted, and the individual below par in type and conformation, he should not be used. His is the influence which most directly governs the destiny of his colts. Beware of the scrub traveling on pedigree alone. Get the horse with the good pedigree attached to faultless conformation.

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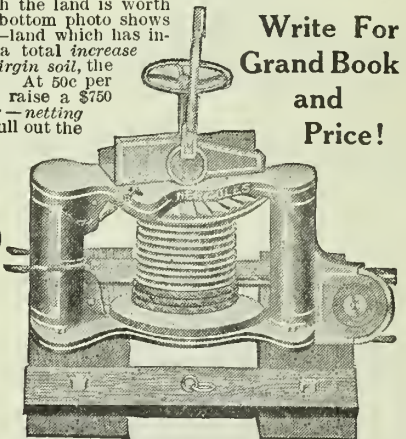
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Look at the two photographs in this advertisement. The top photograph shows a field of stumps—40 acres. The bottom photograph shows the same field after the stumps have been pulled. In the top photograph the land is worth \$20.00 per acre—or \$800.00 in all. The bottom photo shows a crop of corn raised on the cleared land—land which has increased to double its former value—or a total increase of \$600.00. On the cleared land, which is virgin soil, the owner raised a 1500-bushel crop of corn. At 50c per bushel—\$750.00. And he will continue to raise a \$750 crop of corn or wheat or oats every year—netting money that he would not get if he didn't pull out the stumps!

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CATTLE FEED AND WARBLER.

To the Editor: I would like to know through your paper which would be the best feed for me to buy for dairy cows, such as bran, or shorts, etc., as pumpkins are all gone now and will have to get other feed. My cows have a good natural pasture with plenty of grass to eat, but I think they ought to have something else morning and evening. I would also like to know what is good to rid the cows of warbles.—G. W. T. P., Healdsburg.

With this kind of care the best feed for the cattle in proportion to the cost would be a small amount of "Evergreen," or other cattle food made with alfalfa meal for the basis and molasses for the filling. If you care to buy your own molasses and alfalfa meal and do the mixing yourself it will be all right. You might also make it half bran, shorts, middlings and half alfalfa meal. Perhaps shorts and alfalfa meal would make the best combination. If the cows were being fed on alfalfa hay we might advise another combination.

WARBLER.—Warbles are caused by the eggs of small flies which are laid on the skin of the cattle in summer. The cows lick them off and the hatching is done in the mouth or in the paunch. Thence the larvae go through the walls of the esophagus, or gullet, and by degrees get up under the skin of the back, forming the well known swellings. These generally occur about this time of the year, or somewhat earlier. Further development goes on in these swellings, from which the grubs emerge in early spring, finishing up their early life in the ground. They finally come out as flies, ready to begin all over again. Grubs weaken cattle, cause them to fall off in flesh and milk and decrease the value of the hide. The beef in the immediate vicinity of a grub becomes slimy and of a greenish color, and is known to the butcher as "licked beef."

During the winter press out the grubs and destroy them, using a knife if necessary to enlarge the opening; or inject a few drops of kerosene into the swelling through the opening, using a machinist's oil can for the purpose. If all are de-

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You have nothing to risk and a million other cow owners who have made this test have found they had much to gain.

Don't wait till Spring. Even if you have only two or three cows in milk you can buy a De Laval now and save half its cost by Spring, and you can buy a De Laval machine for cash or on such liberal terms that it will actually pay for itself.

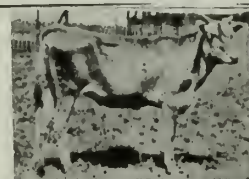
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stroyed this way in winter, there will be fewer flies to trouble in summer. To keep off the flies during the summer, the cattle may be frequently treated with one of the usual fly repellents. (Resume from Special Report on Diseases of Cattle, U. S. Department of Agriculture.)—D. J. W.

SALVE FOR SHEAR CUTS.

According to the Shepherd's Journal, the following dressing is recommended for sheep's wounds: For clean cuts a good dressing, to prevent the fly from settling on the wound is a mixture of one part turpentine, one part Stockholm tar, and two parts salad or olive oil. The turpentine is cleansing, and its strong smell keeps the flies off, but being very volatile it would soon evaporate if used alone. Tar is healing, and being strong smelling is objectionable to the fly. It also adheres to the wool and flesh, and assists to retain the turpentine. Salad or olive oil tends to soften the severe effects of the tar and turpentine, also to a great extent the tar from injuring the wool. The same mixture is very effective also in destroying the maggots after the sheep are blown, and in healing wounds made by them. Any lubricating oil or ordinary fat will serve as a substitute to mix with the tar and turpentine.

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Lining for Small Storage Reservoirs-2

[Written for the PACIFIC RURAL PRESS by F. W. KERNS and C. R. SESSIONS.]

(Concluded From Our Last Issue.)

If a reservoir is fenced so there is no danger from damage by stock, it may be waterproofed by a layer of cement mortar about three-fourths of an inch in thickness, reinforced with wire mesh to prevent shrinkage cracks. This method cannot be used if the soil contains much adobe or other material that is liable to shrink or crack. It will also be necessary to build the levee in layers, sprinkling and rolling each layer until it is very firm, or subsequent settlement will cause cracks in the lining. Dirt should be prevented from mixing with the plaster and absorbing its moisture, by first covering the surface with a thickness of building paper. The cost of such a lining, including the building paper and the reinforcing mesh, is about seven cents per square foot.

A surface may also be plastered with a "cement gun," which spreads the plaster evenly by air pressure. It is claimed that this process produces a very impervious plaster, so that as many as four parts of sand to one part of cement may be used. A volume of hydrated lime equal to about ten per cent of the volume of cement should be added to this leaner mixture, to fill the smaller voids. The cost of this work is about fifteen cents per square foot for a half inch layer of plaster, the excessive cost being due to the royalty on a patented appliance.

It has been suggested that "Road Oil" might be mixed with the surface earth of a reservoir to make an inexpensive, watertight crust. Road oil is a heavy mineral oil, gotten by distilling the volatile products from a heavy crude oil. It contains considerable asphaltum and some oils that flow at ordinary temperatures. For this reason, a lining made with this oil will not last, because the oil will come to the surface and run down the side slope when the water has been withdrawn and the sun heats up the bank. Road oil is shipped in tank cars and must be heated in the car by steam before it can be handled, so that unless the job is a large one, or part of a car can be obtained from some road contractor in the neighborhood, its use is impracticable.

To overcome these objections, a sort of asphaltum paint is made, containing about eighty per cent of asphaltum cut or dissolved in a cheap distillate. In this paint, the asphaltum, which is the useful ingredient, costs more on account of the distillate, than does the asphaltum in road oil; but it is not necessary to apply it hot, and it can be shipped and handled in small quantities. When sprayed or poured on the earth, the distillate evaporates, leaving the asphaltum behind in a finely divided state. To get good results, the earth must be dry, and contain within certain limits, both sand and clay. If the earth is moist, the asphaltum will form a coating or skin over a small ball of earth, which may break up later. Where the natural soil contains a large amount of clay, it should be modified by the addition of sand, a thorough mixture of the two being made before the oil is applied. An exceedingly sandy soil will be helped by the addition of a small amount of clayey material.

The objects to be obtained is to get the oil on the surface and let it form a crust, rather than to let it work its way in any depth, as is done on oiled earth roads. If a surplus of oil appears, it may be absorbed by spreading a little sand or road dust upon the surface.

When about three and one-half gallons of oil per square yard are used, the cost of the lining is about one and one-quarter cents per square foot. This lining is not watertight, and stops only about one-half of the seepage.

When it is possible to get bitumen or prepared asphaltic mixture, a lining may be made by covering the surface of the reservoir with a compact surface of crushed rock or gravel which should be well smoothed and rolled. On this is laid a three-quarter inch thickness of bitumen or asphalt mixed with sand and cement or limestone dust. Such a lining is watertight for the pressures occurring in small reservoirs, such as are herein considered, and it is elastic enough to readily adjust itself to any ordinary settlement of the levee or reservoir bottom. Where it is possible to obtain the bitumen at reasonable cost, such a lining can be put down for about seven cents per square foot.

An excellent lining can be made by laying what is termed "mastic", which contains nine per cent of asphaltum, nine per cent of cement or limestone dust,

twenty per cent of sand, and sixty-two per cent of gravel that will pass a half inch screen. The mixture should be made at a temperature of 275° Fahrenheit. If the ground is firm enough, the lining can be put down without a sublayer of rock or gravel. A layer of building paper may be used to keep the dirt out of the mastic, where laid directly upon the earth. This material is watertight, elastic, and will not become soft at ordinary temperatures; it can be worked easily, and sets like concrete. Excluding the rock or gravel sub-base, it should cost about five cents per square foot.

All asphaltum linings should be well rolled and the joints between successive pieces of work must be carefully ironed with hot irons to secure a good bond.

All cement or concrete linings should be kept thoroughly wet for about ten days after laying to secure an even set and freedom from cracks.

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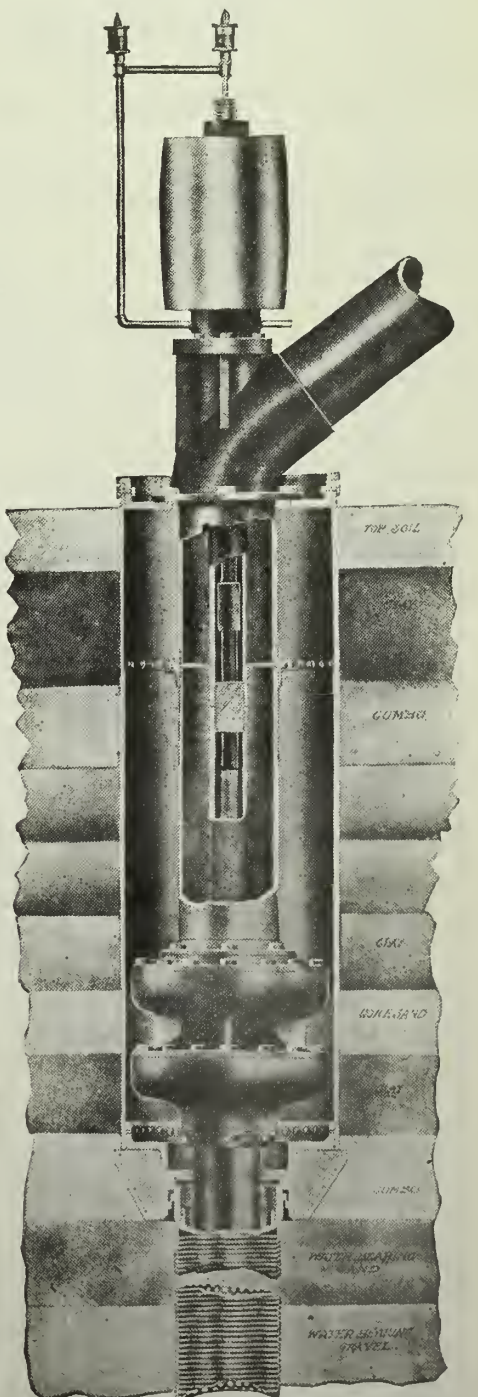
If economy and money saving is any object to you, you owe it to yourself to investigate the Layne-Bowler Pump.

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Blackleg and Its Prevention.

Blackleg is a disease of cattle which is quite serious when it occurs and should be recognized by dairy and stock men. Nothing has been said about it in these columns for some time so a few pertinent extracts from a Department of Agriculture report on Diseases of Cattle should well be given at this time.

Blackleg, blackquarter, quarter-ill, symptomatic anthrax, is a rapidly fatal infectious disease of young cattle, associated with external swellings which emit a crackling sound when handled. This disease was formerly regarded identical with anthrax, but investigations carried out by various scientists in recent times have definitely proved the entire dissimilarity of the two affections, both from a clinical and casual standpoint.

Cattle between six months and two years of age are the most susceptible. Sucking calves under six months are rarely attacked, nor are they as susceptible to inoculation as older animals. Cattle over two years of age may become affected, but such cases are infrequent. Sheep and goats may also contract the disease, but man, horses, hogs, dogs, cats and fowls appear to be immune.

Like anthrax, blackleg is more or less restricted to definite localities. There are certain pastures upon which the disease regularly appears in the summer and fall of the year. It is found in all kinds of soils, in all altitudes, at all seasons of the year and under various climatic conditions.

Since the disease may be produced by placing under the skin material containing the specific bacilli and spores, it has been assumed that cattle contract the disease through wounds, principally of the skin, or very rarely of the mouth, tongue and throat. Slight wounds into which the virus may find access may be caused by barbed wire, stubbles, thorns, briars, grass burs and sharp or pointed parts of food.

The symptoms of blackleg may be either of a general or a local nature though generally of the latter. The general symptoms are very much like those belonging to other acute infectious or bacterial diseases. They begin from one to three days after the infection has taken place with loss of appetite and of rumination, with dullness and debility and a high

fever. The temperature may rise to 107° F. To these may be added lameness or stiffness of one or more limbs, due to the tumor or swelling quite invariably accompanying the disease. After a period of disease lasting from one to three days the affected animal almost always succumbs. Death is preceded by increasing weakness, difficult breathing, and occasional attacks of violent convulsions.

The most important characteristic of this disease is the appearance of a tumor or swelling under the skin of the affected animal a few hours after the setting in of the constitutional symptoms described above. In some cases it may appear first. This tumor may be located on the thigh, the neck, the shoulder, the breast, the flanks, or the rump; never below the knee and the hock joint. It more rarely appears in the throat and at the base of the tongue.

The tumor, at first small and painful, spreads very rapidly both in depth and extent. When it is stroked or handled a peculiar crackling sound is heard under the skin. This is due to a collection of gas formed by the bacilli as they multiply. At this stage the skin becomes dry, parchment-like and cool to the touch at the center of the tumor. If the swelling is cut into a frothy, dark red, rather disagreeably smelling fluid is discharged. The animal manifests little or no pain during the operation. Among the features of this disease which distinguish it from anthrax may be mentioned the unchanged spleen and the ready clotting of the blood. In anthrax the spleen is very much enlarged, the blood tarry, coagulating feebly.

TREATMENT.—In this disease remedies have thus far proved unavailing. Some writers recommend the use of certain drugs which seem to have been beneficial in a few cases, but a thorough trial has shown them to be valueless. Bleeding, nerving, roweling, or setoning have likewise some adherents, but the evidence indicates that they have neither curative nor preventive value and therefore should be discarded for the method of vaccination which has been thoroughly tried out and proved to be efficacious in preventing the disease.

PREVENTION.—The preventative measures consist of the removal of the animals (unaffected) from the infected pasture to a non-infected field, the draining of the swampy ground, the burial or burning of the carcasses to prevent the dissemination of the germs over vast areas through the agency of dogs, wolves, buzzards, and crows, the disinfection of the stables and the ground where the animals lay at the time of death, and, if possible, the destruction of the germs on the infected pastures. One of the most effective methods for freeing an infected pasture from blackleg is to allow the grass to grow up high, and, when sufficiently dry, to burn it off. One burning off, however, is not sufficient to redeem an infected pasture, but the process should be repeated several years in succession. This method, however, is in many instances impracticable, as few cattle owners can afford to practice it, and the only means left for the protection of animals is vaccination.

IMMUNIZATION BY VACCINATION.—By vaccination we understand the injection into the system of a minute amount of artificially weakened blackleg virus. This virus is obtained from animals which have died from blackleg, by securing the affected muscles, cutting them into strips and drying them in the air. When they are perfectly dry they are pulverized and mixed with water to form a paste, smeared in a thin layer on flat dishes, placed in an oven, and heated for six hours at a temperature close to that of boiling water.

From Maine To the Gulf

progressive farmers and dairymen everywhere are using

SHARPLES Tubular CREAM SEPARATORS

Many of them who formerly shipped their milk are now selling the cream and feeding the skimmed milk to the calves, pigs and chickens.

The high price of veal, pork and poultry pays them well to do this—and they're making more money than ever before.

They are successful, progressive men.

Here's a Letter from Maine:

Am using No. 3 Sharples Separator. In 1910 milked eight cows and sold \$450 worth of sweet cream; and raised \$200 worth of calves and pigs on the skim milk. Haven't figured up for 1911, but returns were nearly as good.

Danforth, Me., March 12, 1912.
G. R. FOSTER.

And Here's Another from Texas:

I have a Tubular Cream Separator and like it fine.

Hamlin, Texas, June 16, 1912.
N. C. BAIRETT.

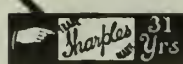
Sharples Tubular Cream Separators make money and save time for you because they get all the cream, are easy to run, and can be cleaned THOROUGHLY in a few minutes.

One of our customers wrote us the other day that his No. 4 Tubular in twelve years had cost him 20 cents for repairs. Some record, that—and worth remembering when you buy a Cream Separator.

It isn't the price you pay for a separator that counts, but how much EXTRA profit it will make for you.

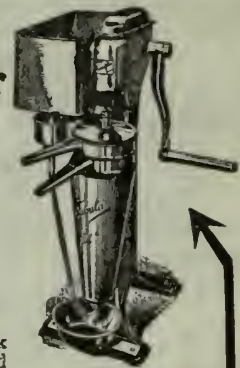
Sharples Tubulars make extra profits. We offer you a Free Trial—and then guarantee the Separator not only for one year, or two years, or five, but FOREVER.

Write for our interesting Tubular A Catalog No. 131 today. It suggests ways to make more money from your cows.



The SHARPLES SEPARATOR CO.

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Portland, Ore. Dallas, Tex. Toronto, Can. Winnipeg, Can.



If You Value Your Eyesight

You will equip your reading table with a **Rayo Lamp**

Authorities agree that a good kerosene oil lamp is the best for reading. The Rayo is the best oil lamp made—the result of years of scientific study. It gives a steady, white light, clear—mellow. Made of solid brass, nickel plated. Can be lighted without removing chimney or shade. Easy to clean and rewick.

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Eureka Harness Oil

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Sold by Dealers Everywhere.

STANDARD OIL COMPANY

461 Market Street,

(Incorporated)

San Francisco.

The paste is then transformed into a hard crust, which is pulverized and sifted and distributed in packages containing either ten or twenty-five doses. This constitutes the vaccine, which is thoroughly tested on experiment animals before it is distributed among the cattle owners. This vaccine, which is in the form of a brownish dry powder, is mixed with definite quantities of sterile water, filtered, and the filtrate injected by means of a hypodermic syringe under the skin in front of the shoulder of

the animal to be vaccinated. In a few cases there is a slight rise of temperature, and by close observation a minute swelling may be noted at the point of inoculation. The immunity conferred in this way may last for eighteen months, but animals vaccinated before they are six months old and those in badly infected districts should be re-vaccinated before the following blackleg season.

The effect of the vaccine in preventing outbreaks of the disease and in immedi-

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The Soil Works While You Sleep



READ

Then Mail This Coupon

Kuhn Irrigated Land Co.,
412 Market St., San Francisco.

Gentlemen: Please send me full information telling me how I can make my dimes grow into dollars on your Little Farms and have 10 years to pay for the land while using it.

The finest alfalfa land in California.

Name.....

Address.....

ately abating outbreaks already in progress has been highly satisfactory and it is not to be doubted that thousands of young cattle have been saved to the stock owners during the first six and one-half years in which the vaccine was distributed. More than 7,700,000 doses were sent out during that period and from reports received it is safe to conclude that more than one-half of this quantity has actually been injected, whereby the percentage of loss from blackleg has been reduced from ten, fifteen or twenty per cent, which annually occurred before using, to less than one per cent per annum.

HUMPHREY IMPORTING GUERNSEYS.

A. B. Humphrey of Mayhew, Sacramento county, is one of our breeders who is making a special effort to have California make the best kind of a showing in 1915, and has just returned from the East with some of the best Guernseys he could secure, as well as some excellent additions to his herd of Berkshires. Mr. Humphrey has been breeding grade Guernseys for a number of years, keeping a few pure bred cows and pure bred bulls.

Aside from the desire to make a fine exhibit at the Fair, this importation is an important step in building up a large herd of high quality pure bred Guernseys.

Mr. Humphrey writes to the PACIFIC RURAL PRESS in part as follows:

After looking over some of the prominent herds we finally decided that we could get what we wanted in southern Wisconsin and we were fortunate in being directed to Rundell Bros. These young men, while they have been engaged in breeding Guernseys for five or six years past, have only just arrived at a point where they were ready to sell extensively and we were able to pick out from their stock what we were looking for.

We got seven young cows there, some of them with advanced register records and some waiting for advanced register at the time of purchase. We also obtained eight heifers.

The whole herd with the exception of two are bred to Messrs. Rundell Bros.'s two herd bulls, both being as well bred bulls as are to be found, one, Langwater Princeling, being sired by Imp. Yeoman, the gold medal winner at the National Dairy Show at Chicago, just passed. He is the sire of Dolly Dimple, the winner at the same show in the aged cow class in an entry of twenty-five.

Their junior bull, Langwater Frenchman, is a grandson of Dolly Dimple on his sire's side. His mother is a granddaughter of Imp. La Belle France, who was first prize on the Island of Guernsey for six years and the champion for four consecutive years. She sold for \$4,000.

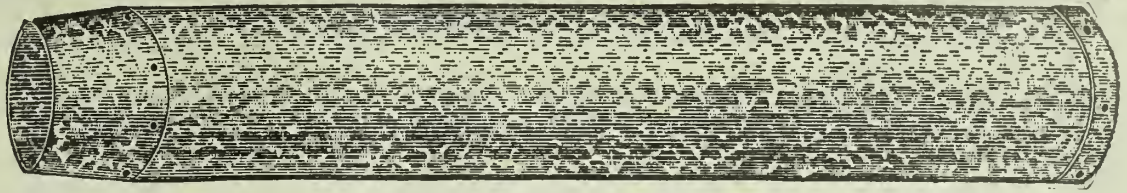
Both of these bulls show their breeding, and as we have twelve head bred to them, we expect during the coming spring to have some bull calves that will not only show class, but will be valuable accessions to any herd of Guernseys or of grades on account of their regular and strong blood strains.

BREED FACTS.—Up until recently the Guernseys have been bred by wealthy men. The origin of the breed being a small island of not more than eight miles square and the cattle never having reached 50,000 head, it was hard and expensive to get the best representatives at first. But perseverance in importing and twenty years or more of hard work has produced results and now the advanced register records are showing cows of wonderful producing capacity and more of them all the time.

The characteristics of the Guernseys are big production of milk and fat for the amount of food consumed.

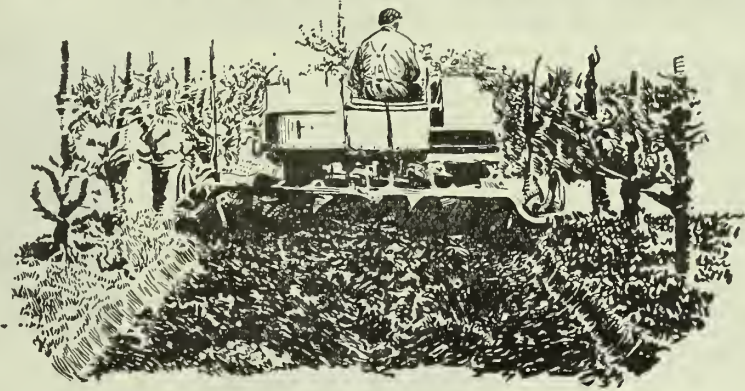
Other breeds show enormous productions of milk, but compared to the measured pounds of food consumed, I think the

SAVE YOUR TIME WATER AND GRADING BY IRRIGATING WITH AMERICAN SURFACE IRRIGATION PIPE



The PIPE RECOMMENDED BY ALL USERS. It is the ONLY SCIENTIFICALLY CONSTRUCTED SURFACE IRRIGATION PIPE on the market. Famous for having a lock seam without rivets. THERE'S NO ROUND SEAMS TO LEAK, retard the flow of water or weaken the pipe. This pipe is easily handled and cheaper than flumes. It will last a lifetime. For irrigating alfalfa it is the only pipe to use. We make RIVETED PIPE, TANKS, ETC. Write for ILLUSTRATED CATALOGUE, also SPECIAL IRRIGATION FOLDER which may mean much to you.

American Steel Pipe & Tank Co., General Offices 342-43 Pacific Electric Bldg., Los Angeles, Cal.



Toe-Hold Tractor

HERE IT IS—a Light, Strong, Handy Tractor

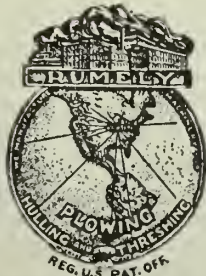
Every farmer wants it for his fields and his orchards.

Fast, Easy Cultivation

This trim-built Tractor turns quickly, steers easily, gets under the branches and pulls like a 20-mule team. Burns gasoline or California distillate.

A Proved Success

It has been worked for two years in Pacific Coast orchards. Owners are delighted. Their letters will convince you. It is made in California and was formerly known as the Johnston Tractor.



Write at Once

If you act quickly we can promise you prompt delivery. Write to nearest office.

RUMELY PRODUCTS CO.

(Incorporated)

Power-Farming Machinery

San Francisco Los Angeles Portland Spokane Pocatello
or LA PORTE, IND. (Home Office) 185

Guernseys stands at the head. Also in point of long milking period no breed beats her.

A number of these cows and heifers are sired by such bulls as Glenwood Squire by Springer and out of Lilla Ella, record 784 pounds fat. Others were sired by Imp. Spotswood Jewel, a grandson of Rose of Gold. All of the sires and some of the dams are in the advanced Registry.

Some of the cows have A. R. records of 350 and 400 pounds, with first calf. This stock has been raised and fed under ordinary farm conditions and as they ranged over hilly pastures in a limestone country, they have big bodies and strong constitu-

tions and they show it. Those are absolutely essential in a dairy cow.

The product of these cows and heifers, as well as themselves, will be bred to our young bull, Don Adonis. We think this bull is without doubt the best bred Guernsey on the coast. His dam, two grand dams and two of his great grand dams have records averaging 714 pounds fat.

We are using this young bull now upon some of the heifers which we have on the ranch of our own breeding.

We have also added to our Berkshire herd and brought out in the same ear a number of highly bred sows in pig to some of the best bred boars in the East.

STAFFORD'S BEST

PAIN

at Wholesale Prices to you. We cut out the agent's profit and give it to you. Send for prices and color cards. We sell engines, furniture, carpets, wire fences, etc.

OLD HICKORY SUPPLY CO., Dept. 3,
1861c Mission Street, San Francisco.

To Exterminate

GROUND SQUIRRELS, GOPHERS, also BORERS, ROOT APHIS, etc., on Fruit Trees

CARBON BISULPHIDE

Is the only effective remedy. For sale by dealers and manufacturers. WHEELER, REYNOLDS & STAUFFER, Office: 624 California St., San Francisco.

Bantams, Their Care and Breeding.

[Written for the PACIFIC RURAL PRESS by
MRS. SUSAN SWAYSGOOD.]

The farm boys and girls, not to speak of the older members of the family, are going to be more or less interested in bantams before very long, because bantams are getting recognition all over the world. A few years ago they were only considered a fad, and only a few lines were devoted to them in poultry books. Now we find books devoted solely to the breeding and caring of bantams.

In 1816, Moubray devoted thirteen lines of his book on domestic poultry to bantams. Forty-five years ago Messrs. Wingfield and Johnson spoke of seven varieties of bantams; all that was then known of; today we have over forty kinds and nearly

POULTRY.

THE MANOR FARM RHODE ISLAND REDS have won more prizes, cups and specials during 1912 at the big important shows than all their competitors. Utility or exhibition stock and eggs; also please remember if you order S. C. White Leghorn chicks from our 180-200 egg strain you will want more. Prices on chicks, \$10 per 100; eggs, \$5 per 100. Also Barred Rocks and Minorca eggs and stock. The Manor Farm, Petaluma, Cal.

BUFF LEGHORN—Booking orders for spring delivery of day-old baby chicks from two-year-old breeding stock; also eggs for hatching by setting or 100; 6000 egg incubator capacity. Indian Runner duck eggs for sale. Baby ducks hatched to order. R. M. Hempel, R. F. D. 1, Lathrop, Cal.

MAMMOTH BRONZE TURKEYS—Young and mature toms and hens, from large utility stock, at SPECIAL LOW PRICES. Good bone, full breasted, well marked, healthy and early maturing turkeys; write for prices. Geo. A. Smith, Corcoran.

WESTERN HATCHERY—Fred Dye, Proprietor, successor to Dye & Fredericks. Now booking orders for day-old chicks, from heavy-laying strain White Leghorns. Prices on application. Box 2, Petaluma, Cal.

SHELLVILLE HATCHERY—Thoroughbred White Leghorn chicks shipped on approval; examine at your home before remitting; no weak ones charged for. Rural Box No. 72, Sonoma, Cal.

WHITE ORPINGTONS—100 early hatched cockerels and pullets from prize-winners. Sales subject to approval on delivery. Eggs \$5 to \$15 per 15. Jeanne A. Jackson, Oroville, Cal.

S. C. WHITE LEGHORNS—Heavy layers, California's greatest prize winning strain. Eggs, chicks, stock. Send for list. M. Dutbernd, Petaluma.

GEO. H. CROLEY CO., INC., largest and oldest poultry supply house in the West.

ORPINGTONS—Buff and White. Some classy exhibition quality in cockerels ready for service. Mrs. S. Swaysgood, R. 2, Pomona, Cal.

CHICKS—White Leghorn, White Rock; high-class stock. Send for booklet of prices. Mahajo Farm, P.O. Box 597, Sacramento, Cal.

BARRED PLYMOUTH ROCKS, White Minorcas, White Holland turkeys. Stock and eggs only. L. N. Cobbledick, Oakland.

CROLEY'S LICE POWDER—for lice on fowls; insects on plants. 25c the lb. can.

BUFF ORPINGTON AND COLUMBIAN WYANDOTTE; eggs and stock. Mrs. Leona Brophy, 1415 N. St., Fresno.

FOR SELECTED EGGS AND CHICKS from S. C. White Leghorns, see Hopland Stock Farm advertisement.

BABY CHICKS, from heavy layers. White Leghorns, Barred Rocks, R. I. Reds. Free folder. White Hatchery, Petaluma.

CHICKENS, DUCKS, GEESSE, GUINEAS, Pea fowl. Address Wm. A. French, 545 W. Park St., Stockton, Cal.

TRAPNESTED S. C. WHITE LEGHORNS. Eggs, chicks, stock. A. R. Schroeder, Box P, San Gregorio, Cal.

FREE BOOK—"Poultry Feeding for Profit," on application to Coulson Co. Petaluma, Cal., Box P.

WHITE LEGHORNS—Chicks, eggs, cockerels. Fine stock. Reasonable. O. B. Morris, Lodi, Cal.

BRONZE Turkeys and Eggs. Ed Hart, Clements, Cal. Large size, good plumage, early maturity.

TWIN OAKS FARM—W. H. Bissell, Proprietor, Livermore, Cal.—Buff, White Orpington.

BARRED ROCKS only. Eggs, stock and chicks for sale. G. L. Hawley, Madera, Cal.

CROLEY'S LICE PAINT—for lice and mites on poultry. 25c the can.

as many colors, all fine in form and plumage. The reason for this increase of varieties and color cannot be because of a fad; nothing can grow and increase at such a rate unless it has useful qualities to back it.

I am not going to write a treatise on which is the best kind or anything like that, all that is a matter of personal choice, but I am going to try to correct some of the erroneous ideas about these beautiful and useful little pets of the children.

HENS FOR HATCHING.—Some people say bantams are hard to raise and in this, as in everything else, there is some truth and a little prejudice. Unless one has good hens of a small variety to hatch and raise the chicks they may be said to be hard to raise, but certainly in no other terms can it be true.

My experience has been that the heat from large hens is too strong for the eggs, so that they do not hatch quite as well as one would wish, then if brooded under a large hen I find the same thing, besides the hen is likely to be clumsy with such small chicks. Otherwise I am sure there is nothing in feathers that can be hatched and raised easier than bantams. Of course everyone will not agree with this statement, because some writers claim quite different, but I think the difference lies in the climate, not in the writers. For instance one writer living in the East says:

"Bantams, when young, have many dangers confronting them. Being so small of necessity they are tender and delicate."

Then he goes on to describe all the troubles and diseases that all domestic fowls are subject to, which the bantams are also subject to, as any rational person would expect. As many of these diseases are caused from cold, damp ground, which naturally affects bantams when young, they can all be avoided here. We don't need to hatch the little pets until summer suns prevail, as they grow to maturity so quick there is nothing gained by hatching early.

LICE TROUBLES.—In this climate the one great enemy to bantams is lice. While this is also true of other chicks it is particularly so of bantams. A large healthy chick will often survive in spite of lice, but not so with bantams. One head louse will kill a bantam if allowed to stay on it, so the only remedy is absolute cleanliness. And this is not such a hard matter if looked after in time.

Be sure the hen is well dusted when she is put on the eggs; then to make sure dust her once a week until the hatch comes off, the last time two or three days before hatching. This insures at least two weeks freedom. Then if she is dusted once a week as long as she broods the chicks you can be pretty sure of the lice question.

DAMPNESS.—The next real enemy is cold, damp ground, and we in this country can avoid that by hatching after the spring rains. May is plenty early enough, but of course we can hatch any time by keeping mother and chicks in a dry place until the chicks feather out. After they are feathered out they are as hardy as any fowl.

Now, having hatched the chicks, it is our part to raise them, and this is the most interesting part of all. In fact it is so interesting to me that I really begrudge a hen the pleasure and want to do it myself. And just to show that they are really easy to raise and pay as they go in interest, I will tell you how I raised eleven last summer.

A little hen came off with thirteen chicks and they looked so cute I stole them from her and put her back in the yard to lay again.

The first few days I just kept them warm, wrapped in a flannel cloth in a

Hopland Stock Farm

Poultry Department, Hopland, Cal.

WHITE LEGHORNS, selected and mated to imported stock cockerels.

BABY CHICKS at \$12 per hundred.

EGGS \$6 per hundred in lots of less than \$3 dozen lots. Orders in excess of above, 10 cents per dozen above highest market price. 75 per cent fertility guaranteed.

5000 hens yarded—sanitary conditions perfect. Well raised—well fed—well culled—eggs will produce layers.

PENS—TRIOS—SINGLE BIRDS OF ALL BREEDS.

BUFF ORPINGTONS—WHITE WYANDOTTES—RHODE ISLAND REDS AND BARRED PLYMOUTH ROCK baby chicks at \$15 per hundred and \$6 per hundred for eggs.

JAPANESE SILKIES—SILVER SPANGLED HAMBURGS, eggs by the setting at from \$1.25 to \$2.50 per fifteen.

S. C. WHITE LEGHORN pullets from \$7.50 to \$15 per dozen.

S. C. WHITE LEGHORN cockerels at \$3 each.

Eggs and stock from prize winners a matter of correspondence.

UTILITY STOCK.

NO CULLS.



Night Scene Showing 1700 Chicks, 10 Days Old about an Arenberg Patent Stove.

This picture is from an actual photograph, and the stove is the original and only perfect oil stove made. This stove has REVOLUTIONIZED the rearing of BABY CHICKS. It is

Arenberg's Patent Brooder Stove

and has proven to be the most successful brooding and heating stove on the market. Awarded Gold Medal for most meritorious California invention at California State Fair. Perfectly safe, simple, easy to manage. Burns Stove Distillate, Engine Distillate, Coal Oil, and, in an emergency, can burn Wood or Coal. For full particulars write

H. F. ARENBERG, Petaluma, Cal.

Live Agents wanted in every state and county in the United States.

S. C. WHITE LEGHORN CHICKS

Our careful and intelligent method of mating our stock, for the past twenty years, enables us to offer a strain of White Leghorn chicks of the most vigorous nature and of the best egg producing strain in the country.

We are the oldest and largest firm in this business, and in consequence of our long experience and completeness of equipment, we are in a position to serve our patrons in a way that is sure to satisfy.

Chicks shipped by express anywhere.

Price list and literature on this subject sent free on request.

MUST HATCH INCUBATOR COMPANY

Box 1003.

PETALUMA, CALIFORNIA

POULTRY AS A SIDE PRODUCT

The ease with which poultry is raised makes it desirable in addition to fruit-raising or whatever farm work you are pursuing. If you start right and continue right you will end right. You will wind up the season with a good profit to your credit.

COULSON'S CHICK FOOD and **COULSON'S EGG FOOD** will go a long way toward putting you on the right course and keeping you there.

OUR BOOKLET "CHICKENS" TELLS THE STORY. MAILED FREE.

It contains interesting chapters on every phase of the poultry business.

COULSON POULTRY AND STOCK FOOD COMPANY

Petaluma, California.

VINDICATED AT LAST

CROLEY'S THEORY—that the best egg production was from a mash containing a mixture of MEAT SCRAP and FISH MEAL.

In the year's competitive egg laying contest held at the Connecticut State Agricultural College—1071 eggs laid by 5 hens fed on such a mixture.

Mix **CROLEY'S HIGH PROTEIN MEAT SCRAP** (which contains 25% FISH MEAL) in your own mash and get the same results.

Manufactured by the

THE GEO. H. CROLEY CO., Inc.

631-637 Brannan St., San Francisco

FOR SALE BY ALL DEALERS

BABY CHICKS

Hicks' Jubilee Hatchery is now booking orders for Chicks. We guarantee satisfaction.

Buy from the one that does his OWN HATCHING.

W. Leghorns, B. Rocks, Buff Orp., Blk. Minorcas, R. I. Reds.

Send for Circular.

W. J. HICKS, Route 2, Box 22, PETALUMA, Cal.

small box in the kitchen at night, and in the day-time out in the sunshine.

FEEDS.—I fed very sparingly of rolled oats crumbled fine, and Spratts Limited Chick Meal. As this chick meal is moistened with hot water I gave no water at all to the chicks to drink, thus saving them from getting wet and chilled.

When the chicks were two weeks old I let them run in the garden in the day time and fed chick feed and rolled oats just as I did my other chicks, only not so much of it. Every night those little chicks would come to the back door and wait for me to come out and put them in their box for the night. The box was now outdoors, and instead of a flannel cloth to cover them I put in some fine straw.

The small box was set inside a large box with no front, so to make sure cats did not get them I put in a one-inch mesh wire front. In the morning my chicks were always ready to come out and get their

breakfast, after that they ran contented all day unless I called to them, when they always came at the call. Of course running loose they came in contact with other chicks and also with grown fowls, and one night when they came up to be put to bed I noticed two of them drooped their wings. Surmising what the trouble was I looked them over and found one big head louse. I had no buhach in the house as it happened so put a little grease on the heads of the two chicks and next morning they were both dead. That day I went to town for some powder and dusted the rest and never had another bit of trouble.

CHILDREN'S DELIGHT.—All the children in the neighborhood used to beg to come and watch me put my bantams to bed, and when I sat down on the step and the chicks commenced to fly into my lap, maybe those youngsters did not wish for some of them. Parents spend hundreds of dollars on Christmas toys that only last a few days at most, while a pair of bantams would last and give both pleasure and instruction for years.

Of course all are not so situated that they can indulge their children in such a way, but most farmers are as far as room is concerned.

SMALL RUNS BEST.—Bantams do best in small houses and runs. After I get my runs made right they will not run loose, because I think they should not run with larger fowls. Runs about four by eight made portable so that they can be moved around are about the best, to my idea. But I have not been able to get everything in order yet so do the best I can. Any food, except barley and the large corn, makes good feed for grown bantams, mine eat wheat, sprouted oats and kaffir corn just like the rest of my flock.

Mr. T. F. McGrew says, "When the breeding season commences, move pens entirely away from winter quarters. For houses use a common store box, line it with tar paper, make a slanting top and have a wire front open to the south. Runs should be covered with grass."

I sow oats and let them eat the tops and scratch for the oats.

Too much corn will make them too fat, so unless you want to fatten it is best to feed more wheat than corn of any kind. What is true of all other fowls is equally so of bantams, so it ought not to be very hard to know when we are feeding right.

USEFUL AND ORNAMENTAL.—Now as to the uses of bantams. True, most of the varieties are classed as ornamental, but even so that does not alter the fact that they are also useful. In the first place they are good layers of very rich eggs, and once eaten are always wanted. Where space is at a premium a pen of bantams will pay their board quicker than anything I know of.

As a table bird they are unexcelled, being nearly all meat of a gamey flavor. If hatched early they will grow quite large and one will make a meal for any two reasonable eaters.

They make the very best of mothers and any high-priced eggs can be trusted to them to hatch and, provided they are kept clean, they will never desert them.

But the most useful quality in bantams, to my thinking, is that they keep our boys off the streets and interest them in healthy natural pursuits. I raised these of mine with the special purpose of giving each little grandson a pair to start them. Now I expect to have them competing against me in the shows and won't that be fun? Anyway there will always be the satisfaction of knowing the boys had a chance to try what they could do, and I am not worrying about getting beat.

Hewitt—Do you think long hair makes a man look intellectual?

Jewitt—Not when his wife finds it on his coat; it makes him look foolish.

Get More Eggs

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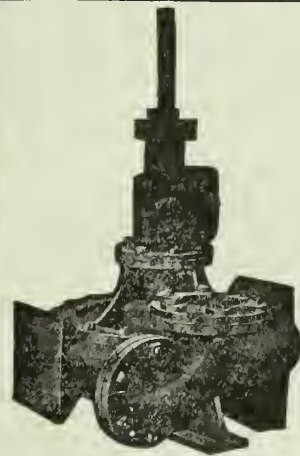
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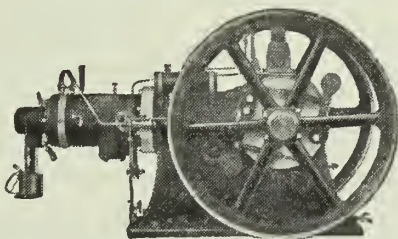
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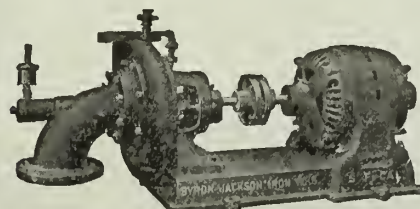
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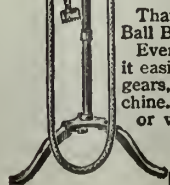
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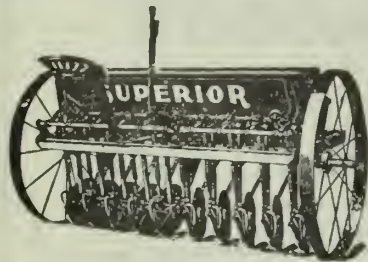


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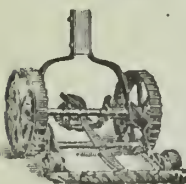
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REJUVENATION OF THE FOOTHILLS.

(Continued From Page 33.)

there are several almond, prune, and peach orchards dotted around,, almonds doing particularly well—one orchard we visited having borne good crops for twenty-three years with the exception of one year. Prunes from this section are eagerly bought, as they usually run to good sizes, and with more scientific management would no doubt do much better.

Plymouth, at the extreme end of Amador county, is just beginning to realize the possibilities of fruit ranching, and will no doubt be a great prune, apple, and pear district in the future.

In the Mokelumne Hill district perhaps a wider variation of fruits and vegetables are grown than in any of the other districts, but the area is limited because the country is so mountainous.

THE SONORA DISTRICT.—The one section which is better advertised, and therefore better known, is the district adjacent to Sonora and Tuolumne in Tuolumne county. As all know who have attended the Watsonville apple annual the past two years, this district has carried off high honors and prizes in competition with apples from all over, especially the red ones such as the Red Baldwin, Delicious, Hoover, and others. The red and striped varieties are receiving more attention from new planters, not because they grow any better or produce more, but, instead, for the reason that the valley competition is not so strong as would naturally be the case with Bellefleurs and other yellow and green kinds.

The climate and soil accompanied with the high altitude of most of the orchards all tend to the production of a fine colored as well as a highly flavored fruit which finds a ready sale even in a year of poor prices like the present one, when other apple sections are complaining.

As one grower told the writer: "What this district needs right now the worst is a hunch of new men who will not only improve the undeveloped land, but will also give their support to better cultural methods."

To show that the apple business will be a permanent business after it is fully established, one orchard, planted in the early '50s, for which trees were brought from the East around the Horn, are still bearing abundance of fruit, even though they haven't been sprayed nor pruned for the past two years.

GENERAL FARMING.—To add to the fruit, dairy, and live stock interests in the three above-mentioned counties, general farming is carried on and a great deal of dry-farming is done. Grain and hay are grown on most every ranch in connection with other lines, but it will no doubt be but a short time until water will be developed to warrant the plantings of other things more profitable, as it has in the large interior valley.

In concluding, it should be noted that, while there is an abundance of water all through the mountains that goes pounding down to the lower countries, no co-operative effort has been made to divert any of it through ditches onto irrigable land, and until that is done, perhaps the greatest benefit will not be derived from the rich mountain soils.

PROTESTING REDUCTION OF WALNUT TARIFF.

Representing producers who work 36,000 acres of land in California, a committee of walnut growers was appointed to go to Washington to combat any proposal to reduce the tariff on walnuts. The duty collected on foreign walnuts amounts to 3 cents a pound. The California growers assert that if this is reduced an industry in which \$50,000,000 is invested in California will be practically killed. The committee of growers will appear before the ways and means committee of Congress at Washington, January 20.

COMPENSATION FOR INJURY SHOULD BE FAIR.

To the Editor In the PRESS for November 30, Mr. Pillsbury, commenting on my recent communication to you concerning the Roseberry law, observes that insurance and compensation differ. He is right. Insurance is a guarantee of compensation. Insurance is the tree, and compensation the fruit, but in order to harvest the crop the insured must suffer.

A guarantee of compensation has been offered by the common-law courts, but experience has taught that it is only possible to realize 25% of the total compensation, the other 75% being absorbed by expense caused by dilatory court procedure.

Compensation is due the instant the injury occurs, and as a person is entitled to interest on money due him, the injured party loses, in addition to the above-mentioned 75%, the interest on the total amount of compensation furnished by these courts, from the time of injury until compensation is made. This, coupled with the "fellow servant" ruling of these courts, has made their guarantee so inadequate to furnish justice that the workers have felt impelled to seek some other method of procedure by which greater justice can be secured.

In order to meet this requirement, an attempt is made in the Roseberry law to substitute for this manifestly inadequate common-law court a special court called a "commission."

All that is required is justice between a plaintiff and a defendant, and so far as I can see, it matters little by what procedure the end is attained. All that need be asked is promptness and efficiency. Why a court not hurdened by a large amount of other business, cannot ascertain the facts in cases of injury to employees within sixty or ninety days is hard for me to see.

Mr. Pillsbury further calls attention to the fact that millions of working farmers in Europe receive insurance under laws made for the benefit of working people, to prove me mistaken in my contention that a working farmer could not profit by laws made for insuring compensation to employees. I can assure Mr. Pillsbury that I am glad I was mistaken.

The method outlined of considering the working farmer as an employer in order to ascertain the premium and as an employee for purposes of compensation, merely serves to emphasize my contention that the Roseberry law and accident insurance grows out of a contest between employer and employee.

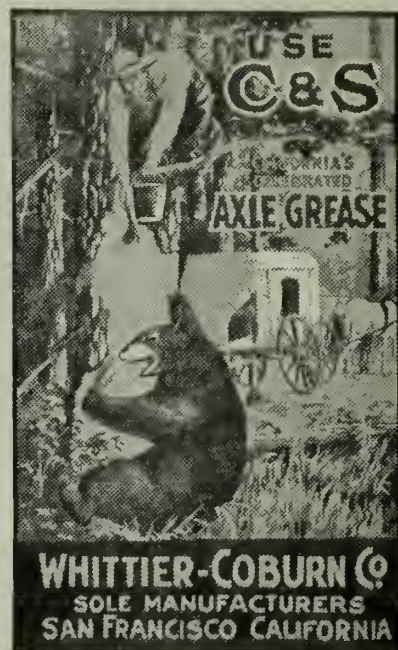
Undoubtedly the employer feels that for him to guarantee compensation is equivalent to an increase in wages. To the employee it is this and more, for it lessens by just that amount the ever-present fear of loss of earning power.

The employer objects to compensating an employee for injuries for which the employer is not to blame, and the employee could scarcely expect him to do so without a cut in wages equal to the premium on such risk.

A measure for the prompt compensation of injured workers is most certainly needed, but such measure ought not to impose a hardship upon employers.

W. O. RETHERFORD.

[We regret that Mr. Retherford's reply, seasonably written, has been accidentally delayed.—EDITOR.]



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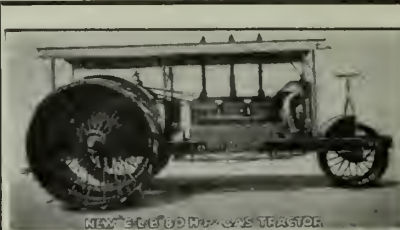
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Local Agents Wanted.

THAT TURKISH TOBACCO.

We answered a question about the problems in Turkish tobacco growing last week. A statement comes from Dinuba to the California Associated press which seems to be carefully prepared by those who desire to see this tobacco grown and our readers may be interested in it:

The season's crop of Turkish tobacco in Dinuba has been sold to the American Tobacco Co., and averaged 35 to 55 cents per pound. This was a lower average than last year, due to the quality being poor from lack of proper attention and knowledge of the needs of the growing crop. Even at this price, however, the net gain for the year was about \$200 per acre over last year and considering that much of it was grown as a by-product, between the rows of young trees and vines, the crop comes far from being a failure.

The use to which this particular tobacco is put is flavoring of high-class smoking and cigarettes, therefore it should be the aim of the cultivator to grow for quality and not quantity, as in the grapes of France from which the finest wines are made.

BEST RESULT METHODS.—Best results have been obtained in this State by planting the seeds in hotbeds, under muslin, the latter part of January or the first part of February, then the plants will be ready to transplant in the field in April, but should not be put out later than May 10th. These dates being the harvest in July or the fore part of August, and the cultivation at a time when the grower will not be required among his fruits or such other crop as he may be growing for his principal harvest.

While ash soils or other light soils are not good for this plant, it thrives best in clayey soil, such as red bog and also the dark sandy land.

REAL TURKISH FLAVOR.—The real Turkish flavor is secured by dwarfing the plant as much as possible, giving it barely enough water to cause its leaves to stiffen up over night and by evening of next day be drooped. Too much water not only forces the plant to a large growth devoid of aroma, but rots and makes worthless the ground leaves.

Tobacco set out at the proper time escapes many worms that work in the later crop and are a factor in reducing prices.

To perfect the Eastern or American plant, pains are taken to break off all flowering shoots. This process is called "topping" and "suckering" and forces the strength into the leaves, increasing their size. This is directly opposite to the culture of the Turkish product as all flowering shoots are allowed to remain, and a harvest field is an area of seed-bearing stalks.

LEAVES ARE PICKED.—In harvesting this crop, the leaves as they show the ripening hue are stripped from the stalk and hauled to the shed, where they are allowed to wilt about twenty-four hours, and then strung on a light hemp twine with a needle piercing the center stem. Each end of this twine strung with the leaves is attached to opposite ends of a pole, six feet long, and suspended on poles in the sun, here to remain until the moisture has evaporated from the centre, or great stem of the leaf.

Here again is where several made the mistake of jamming the leaves so closely together on the string that the center stem mildewed and rotted.

WHAT SALTPETER DID TO THE STUMP.

To the Editor: In your issue of December 14, Mr. E. B. D. of Kelseyville asks for advice in regard to killing stumps with saltpeter, and I will tell him my experience.

Last Spring I had three white oak trees to be taken off the farming land,

and as I had always heard that boring into a stump and inserting saltpeter would cause it to burn in three or four months, I thought I would try it. I bored 5 holes 1 inch in diameter and five or 6 inches deep and filled them all with saltpeter and plugged them up. I dug around the tree for two feet deep and threw all the chunks and brush around and over the stump, and waited for results. About a week ago I set it afire, and as the stump is still standing, I also hauled a load of dry logs and two stumps that were grubbed out at the same time this one was doped, and burned it around the stump, but to no avail.

The other two trees I had grubbed out and the chunks and brush piled around them in the same manner, and they burned almost up—enough so that I dragged them to the stump that had saltpeter in and finished them there.

The stump that had saltpeter was a failure and is still there; the two that were grubbed are out of the way and the ground is all level where they stood. It cost \$1 each to have them grubbed. I trust this will be of some advantage to your readers.

Santa Ynez.

[Thank you. It is very interesting. We are still looking for the man who has actually made easy burning of live stumps with saltpeter. We do not care for anyone who has heard or read about it; we want the one who has done it.—EDITOR.]



Your Chief Helper

*A Rumely OilPull Tractor, 15-30 h.p.,
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One big advantage of a tractor is this—you can work it hard at the right time—24 hours a day, if necessary. The big advantage of an OilPull Tractor is that it can stand this pace without danger of a breakdown. Its value in a rush will pay you for having it. The



Tractor, 15-30 h.p.

is built particularly for small farms. A 160-acre farm can use it with profit and a big farm will find it a mighty handy machine.

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It has plenty of power for ordinary work—pulls 4 bottoms in ordinary breaking—4 to 6 in plowing. It will plow and disc 10 to 14 acres a day. Two boys and this tractor will do the work of 4 men and 12 horses all the time—as much more at night with another crew.

The big part about this tractor is that it is easily handled and will go almost anywhere. It is fine for slow, steady work, and is equipped with two geared speeds, for heavy hauling and quick return, harvesting, hill-climbing, etc.

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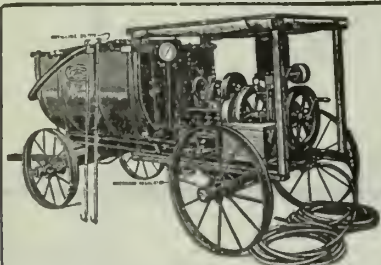
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Also roses, fruit trees and other nursery stock.

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H. F. KEMPF, Manager.

AGRICULTURAL REVIEW.

Citrus Fruit Damaged by Frost.

The cold wave that swept over the whole country, beginning January 4th and lasting until January 7th, did great damage, but nowhere was the loss so great as in the citrus districts of California, particularly south of the Tehachapi. At this writing, all sorts of guesses are made as to the extent of the loss, but not for some weeks will the true amount be known. The heaviest orange district of the State, running from Los Angeles east to San Bernardino, was apparently the hardest hit. Temperatures in the various centers of that district are reported to have fallen as low as 18 degrees above zero, and the cold was long sustained. In many sections frost-fighting was resorted to with considerable success. In San Diego county, where there was no concerted effort made in frost-fighting, the losses were very severe. Estimates are made by those in close touch with the citrus industry as to the probable effect upon shipments, and most of them agree on from 25 to 50% loss in the crop, taking the industry as a whole. Northern California growers were hurt less, as the crop generally had been picked and the trees were in a more dormant condition. The loss of nursery stock as well as young trees in recently planted groves will be enormous.

Celery growers in Orange county were also damaged very considerably. Only part of the season's crop had been shipped, and the balance was more or less frosted. How much can be saved, only time will tell.

Agricultural Legislation Up.

Before the present session of the Legislature is adjourned, bills relating to agriculture will be nearly in excess supply, if the present rate is kept up. Some prospective bills have already been referred to. One bill is to have all agricultural products, including eggs, fruit, etc., sold by weight rather than by number or measure. The proposition to make loans to farmers on better terms is considered in a bill introduced by E. O. Larkins of Visalia, whereby counties will be divided into districts and a small tax levied, the money to be loaned to farmers on agricultural land as security, at 4 per cent. Another bill contemplates the licensing of commission men and the State regulation of the commission business.

Mt. Diablo Development News.

To clear away any cloud which might exist upon the title and for the satisfaction of the title insurance companies, several suits of various descriptions which had been filed in the Contra Costa county courts, thirty or forty years ago, involving the Moraga rancho, were recently dismissed by order of the court, acting on its own volition. The suits were originally filed for divers reasons, and, although they had never been prosecuted, were still pending. In any event, the old actions would never have been prosecuted. The action on the part of Horace W. Carpenter could give satisfactory title to recent purchasers of the tract. In the transfer of the tract, R. N. Burgess Company, San Francisco and Oakland realty operators, acquired 6,000 acres comprising the pick of the property. The Carpenter ranch lies in Moraga valley, which is situated just over the Piedmont hills and is the "closest in" holding of the Burgess Company. It is intersected by the main line of the Oakland & Antioch Railway, which, when completed in February, will land the suburbanite in Oakland in a matter of 20

minutes. The entire tract will be subdivided into small farms and one or two townsites platted. Engineers now engaged in Mt. Diablo park, situated at the base of Mt. Diablo, will soon be on the job in the new holding, which will be put on the market in the early spring.

River Reclamation Promising.

Good news for land-owners in the delta region of the Sacramento and San Joaquin rivers comes in the announcement that the reclamation work intended to insure protection against floods will cost probably only about \$16,500,000 instead of the \$33,000,000 which it was first thought would be the cost. The Federal Government, the State, and land-owners were to co-operate in the work, which was badly needed. Any communications on the matter are to be addressed to Major S. A. Cheney, of the Engineering Corps of the U. S. Army, before January 15, 1913.

The War Department has granted permission to R. L. Stone, of Davis, to divert water from the Sacramento river 12 miles above Sacramento. It is intended to use this water in irrigating a large amount of land in Yolo and Solano counties. The permission depends, however, upon there being sufficient water in the river to serve all purposes of navigation.

Farther up the river in the Sutter basin a large number of options which J. Ogden Armour, the Chicago packer, has been gathering for some time, have been taken up. It is thought that this precedes a great reclamation project.

Holstein-Friesian Records.

During the period from November 10 to December 1, 1912, records for 259 cows were received and accepted by the Holstein-Friesian Association. The averages for 97 full-aged cows were 461.2 lbs. milk and 16.263 lbs. fat. The 51 junior two-year-olds averaged 304.7 lbs. milk and 10.671 lbs. of fat. The other classes may be omitted. The herd of 259 animals of all ages, nearly one-half of which were leifers with first or second calves, produced in seven consecutive days an average of 402.5 lbs. milk, containing 14.178 lbs. butter-fat. The average test was 3.52, approximately the same in all ages, indicating that this test has about come to stay as a breed average. The best record of the period was that of Flossy Grant of Pleasant View with 26.359 lb. fat from 712.8 lb. milk. She is owned by G. H. Gillespie, Mason, Mich.

Miscellaneous Live Stock Notes.

There has been considerable trouble lately in parts of Tulare county from hog cholera and a large number of hogs have been lost in the region around Tulare. Usually the cholera is worse this time of year than any other owing to rains and surface water spreading the disease. So far that method of spreading the disease can have done little harm this year, worse luck.

S. H. Grigsby and G. C. Landauer of Yolo county have purchased the 1800-acre ranch of J. E. Cornish, 12 miles west of Aituras, Modoc county, on the pit river, and will raise horses and other stock. This is one of the oldest and best stock ranches in the county and was the property of the late W. B. Whittemore.

Word comes from Chico that rapid pro-

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WALNUT TREES—Late varieties, grafted and budded on hybrid root—Eureka, Franquette, Mayette, Concord and Placencia. Dr. W. W. FITZGERALD, Elks Bldg., Stockton, Cal.

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CITRUS TREES—Washington Navels, first-class stock, half inch and up. C. Ledig, Globe, Cal.

IRIS—New descriptive Price List now ready. The Dean Iris Gardens, Moneta, Cal.

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gress is being made in the introduction of pure-bred Holstein bulls among dairymen in grading up their herds. One shipment of 30 head of Holstein bulls recently arrived for use on the Parrott Grant.

Irrigation Increases.

In the Modesto Irrigation District during 1912 approximately 5,000 acres were added. The increase was entirely by private ditches, no ditches being acquired during the year. The total acreage under irrigation in 1911 was 34,954 acres, and in 1912, 39,777 acres.

The Wheeler irrigation project on Dry creek, in the Goose Lake valley, Oregon, is going ahead rapidly, and one or two reservoirs will be completed by spring. A second reservoir will be completed in time for the 7,000 acres to be irrigated in 1914. The land served by the first reservoir amounts to 4,000 acres.

The 400-acre tract of land in the Woodville district belonging to a Porterville company will be ready for the alfalfa early next spring, as contracts for the irrigating machinery were recently let.

Irrigators Form Big Organization.

An organization which will unite the whole San Joaquin valley in a conservation scheme for flood-waters for developing power and water for irrigation and to secure the drainage and provide for navigation in the valley, has been formed at Fresno. It will be known as the San Joaquin Valley Water Problem Association. Officers were elected as follows: President, John Fairweather, of Fresno; vice-presidents, F. G. Munger, of Bakersfield, C. A. Turner of Visalia, John Dawson of Hanford, I. T. Ellman of Fresno, R. L. Hargrove of Madera, J. E. Hollingsworth of Gustine, L. L. Dennett of Modesto, and J. S. Craig of Stockton; secretary, A. L. Cowell of Stockton; treasurer, Berton Einstein of Coalinga.

Dairymen Oppose Tuberculin.

The Tulare County Dairymen's Association has come out flat-footed against anything that savors of compulsory tuberculin testing. The Association will combat a bill to be introduced in the legislature extending the use of the test and will stand behind the bills introduced by the State Dairy Association. The county Association is in a thriving condition, 35 members being added to the rolls during the past month.

Farm Land in Great Demand.

What is reported as a record price was realized for five acres of land set to oranges and lemons near McPherson in Orange county, when M. N. Hunton paid \$2400 per acre for the small ranch. Up in Butte county the real estate men say business was never so brisk, as not only are outsiders purchasing small tracts daily, but the residents of the Butte county towns are investing in land quite freely. The large tract of the Bidwell Orchards Co. is selling rapidly, while other tracts in the vicinity report doing the proverbial "land office" business and expect an increased demand for farm lands this month. A similar story might be told of quite half of the counties of the State.

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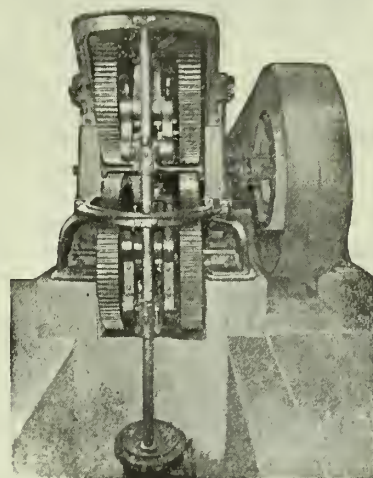
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Lincoln Fruit Growers' Association.

At the annual general meeting of this Association, held in Lincoln, Placer county, on December 28th., the following were elected officers and directors for the ensuing year: M. Godley, president; Geo. E. Daniels, vice-president; J. E. Fowler, treasurer; Fred Clark, secretary. A. Isaak, S. Riggs, and Wm. Plum, directors. N. L. Labue will be retained as manager for the coming season. A total of 43 cars of fruit were loaded and shipped from the local house last year, and the members were enthusiastic over the prospects for the coming year.

Government Examining Soils.

The U. S. Department is conducting systematic soil survey of Merced county. Samples of every kind of soil in the county will be taken and sent to Washington for a chemical and physical examination. An examination of the soil on every 40-acre tract will be taken, and two of the Government experts, E. B. Watson and J. W. Nelson, will be engaged in the work for several months. Similar examinations of soil areas have been made in various parts of the State and bulletins issued thereon.

Rice Becoming Popular.

John Henrison, of the Biggs section, Butte county, has sold 550 acres to residents of Woodland, who are expecting to grow rice on a part of the same. A number of other tracts of land are going to be used for rice along the upper Sacramento. Only adobe land is used, some of which has brought \$85 per acre with this crop.



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the egg, Mr. Orchardist, Don't wait till it has grown into a good sized hungry insect. The damage is already done them. Use

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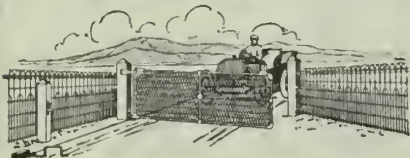
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The Pacific Rural Press

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The Home Circle.

Flowers as Edibles.

The usefulness of flowers as edible delicacies is practically not known in this country, though abroad they are used as ingredients in many cities.

Candied violets are now a product of several districts in France. At Grasse, for instance, in which neighborhood immense quantities of them are raised, all the old and stale violets are purchased by the confectionery manufacturers, who steam them, dip them in boiling sugar, and sell them in commerce at a high price as "confiture of violets." Rosebuds boiled in sugar and made into a preserve form a sweetmeat popular among the Turks and Greeks. In Roumania, roses, lime flowers and violets are much used for flavoring preserves of various kinds; and are also utilized in Turkey, Persia and Arabia, in the preparation of sherbets. The famous violet sherbet of the Calipah is of greenish color, and to this day is called the Grand Signors sherbet.

That species of lily known to botanists as Thunbergi is, in China, one of the most choice delicacies of the native kitchen. It is dried and used for seasoning ragouts and other dishes. The lilies are grown for market in many provinces of China, and usually are dug up just before they open. Cooked as a fresh vegetable they have a singularly agreeable taste and fragrance. The Chinese also candy dried rosebuds, violets, jasmines and pomegranate blossoms, while out of the yellow waterlily they make a delicious jelly. The Turks also utilize this common waterlily in the preparation of a very favorite cooling drink.

Uncle Sam's Sweet Tooth.

It is estimated that the sugar consumption of the United States during the year 1912 will reach eighty-seven pounds per capita, against eighty pounds per capita in 1910, and fifty-nine pounds per capita in 1900. The consumption of sugar in the United States has more than doubled since 1880. In all other countries than this, says the Chronicle, a phenomenal increase such as noted would be regarded as an unfailing sign of great prosperity, but the free-trade politicians and muck-raking magazine writers of the United States have no difficulty in twisting into indisputable evidence that the people are suffering from the high cost of living and the exactions of trusts.

With the declaration that the United States should raise all of its sugar, the Department of Agriculture today issued an appeal to the American farmers to go in for the cultivation of the sugar beet. There are two million short tons of beets now imported annually, says the department, which should be raised at home.

The Benificence of Onions.

The use of plenty of onions will drive contagious diseases out of any city. Dr. Mary Walker, who is visiting with Chicago friends, recently declared. Here are Dr. Walker's directions for the use of onions:

Eat plenty of them, stewed, boiled, fried or raw.

Keep the fumes of onions continually permeating the atmosphere.

Spread onions in the alleys, on the lawn and any other place where it might appear they would do good.

Dr. Walker said onions were particularly effective against smallpox. The use of the vegetable in two cities, at least, has proved her contention, she said.

"Madrid was one of the affected cities,"

she said. "Some even had made the statement before the onions were used that the city would be depopulated by smallpox. The minister plenipotentiary assured that the spread of the disease had been halted by the use of onions. They also were used in other cities."

Some English Soup Recipes.

CELERY SOUP.—After cleaning thoroughly, chop into small pieces the outer portions and tops of a stick of celery which are usually thrown away. Stew with sufficient water to cover the pieces, including a chopped onion, until they are quite tender. Add salt and pepper and a little flour to thicken if desired, boil up a few minutes and it is ready.

ONION SOUP (for three).—Chop two medium-sized onions, sprinkle over a dessertspoonful of flour and fry until brown in an ounce of fat. Place in a saucepan with one quart of water, a large potato sliced thinly, pepper and salt, and boil 30 minutes.

PEA SOUP (for three).—Wash and steep over night a small teacupful of split peas. Boil in a quart of water 2 1/2 hours, adding a carrot, a turnip, and an onion, and pepper and salt.

BARLEY BROTH (for three).—Boil a teacupful of barley gently 3 hours in from 1 1/2 to 2 quarts plain boiling water. with 3 carrots, three turnips, a dessertspoonful brown sugar, and a large onion, all chopped finely. Add salt and pepper, and boil, and, just before serving, a little fresh parsley.

SCOTCH BROTH.—Wash a teacupful of barley and leave it to soak for two or 3 hours. Take whatever vegetables are in season, a cabbage or cauliflower, a turnip, a carrot, a leek or two or 3 onions, and chop them together. Then place the soaked barley in a pan with a quart of water, and when it has boiled, add the chopped vegetables with an ounce of butter and a teaspoonful of salt. Let the whole boil for 2 hours. If it gets too thick, dilute cautiously with boiling water.

French Pancakes.

Put six heaped tablespoonsful of flour in a dry basin with two whole eggs; beat the eggs with a little milk into the flour, using three parts of a pint of milk. The batter must be as thick as double cream. Melt a lump of nice sweet dripping, or butter, in a frying-pan. When it frizzles, put in two tablespoonsful of batter. This quantity is sufficient for a frying-pan that is as large as a tea-plate; for a large pan, enough batter must be put in to just run over the pan of not more than one-eighth of an inch in thickness. When a delicate brown on one side, turn it over and brown the other. Put on a hot plate, spread some raspberry jam over the pancake, roll up, and keep hot until all are finished in the same way. Serve on a folded napkin.

Customer—Waiter, I notice that the servants in this establishment are forbidden to receive gratuities.

Waiter (solemnly)—Sir, ever since my earliest childhood I have been noted for my disobedience. I broke my mother's heart through it, I—thank you, sir!

"When I was shipwrecked in South America," said Captain Bowsprit, "I came across a tribe of wild women who had no tongues."

"Mercy!" cried one of the listeners of the fair sex. "How could they talk?"

"They couldn't!" snapped the old salt. "That's what made 'em wild!"

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Established 1860.

What We Want for Boys.

We want our boys to be strong and well trained to use their strength; we cannot bear to see them made slaves to tobacco and alcoholic drinks, or any other kind of greediness and self-indulgence that enfeebles their bodies.

We want them to have skill and intelligence, and to think straight, and to use their common sense, and be able to do well whatever they undertake.

We want the boys to have plenty of will and energy, so as to keep their passions and appetites under control, so as to put power into their work or their study or their sport, so as to bring things to pass and "make good."

We want them to possess courage for everything that a man has to do, not to merely face peril when it comes in their way, but to dare think for themselves, and to stand alone if it need be, and not to mind ridicule or opposition, provided they are doing right.

We want the boys to be clean in their words and their acts, and to hate filth as we hate disease.

We want them not to be fussy or to make account of small inconveniences or suffering, but to take large views of things and learn to laugh at petty annoyances.

We want our boys to be modest and and open-minded, free of egotism, conceit, and prejudices, willing to see their faults and to correct them, and to learn from any one who can teach them.

We want them to be thoroughly honest and honorable, to scorn to take a mean advantage in a game or a bargain, or to tell a falsehood. We want them to be trustworthy, to pay their way and keep their promises, and be depended upon for their promptness and punctuality.

We want the boys to be obliging and generous, and to love to help wherever help is called for. We cannot bear to see them grow up to be selfish men.

We want the boys to be good comrades and friends, social and loyal, with plenty of clean wit and clean hearts.

We want them to be thoughtful and considerate of others, kindly and respectful to strangers as they would wish to be respected themselves, free of snobbishness and pride, gentle to children, chivalrous to all women as they would wish every man to be toward his own mother.

We want them to have good hearts and also good manners. We cannot bear to see rude, ugly, cruel, wilful men growing up in our country.

We want our boys not to lose their temper, like weaklings and ignorant people. We love to see a boy keep his temper, like a strong steersman, under all conditions, towards all kinds of people, and not least towards those who provoke him. For the man who keeps his temper is always the master.

We want the boys to have public spirit and patriotism, to love their town and be willing to serve it, to love their State and seek its welfare, to love their country and to act and vote for its safety, its prosperity, and its honor, and never to let its government do an injustice.

We want them to have a friendly mind for every great human movement for the sake of liberty or justice or humanity anywhere in the world.

We want our boys to have a simple and hearty religion, reverence for whatever is noble and beautiful, trust in the Eternal Goodness that orders our lives, a good will to do whatever duty bids, a cheerful courage and the light of a manly hope in their eyes.—Rev. Chas. F. Dole. D. D.

With a cargo of 160,000 sacks of bar-

ley, the largest consignment from the local port, the British steamer Indra left Port Costa, Dec. 28 for Liverpool, via the Magellan straits. The steamer was loading barley for three weeks.

Candy Recipes.

Here are some sweets that you can make without invading the kitchen or sitting-room, since they require no cooking:

For peppermint creams take a pound of icing sugar, roll it until all the lumps have disappeared, and mix with the beaten-up whites of two eggs, into which you have carefully stirred a small teaspoonful of essence of peppermint. Place small dabs of this mixture on a wide dish, shaping them as you like, and leave them to dry. In a few hours they will be quite hard outside, and the most delicious peppermint creams you ever tasted.

For Lemon Snow Drops.—Use the same mixture as above, but flavor with a few drops of essence of lemon instead of peppermint, and shake from a tiny spoon on the plate.

For Chocolate Cream Cakes.—Take half a pound of crushed chocolate and a pound of icing sugar. Blend this with beaten up whites of two eggs, and cut into small cubes with a sharp knife. Then leave in a dry warm place.

For Marzipan New Potatoes.—Mix a pound of ground almonds with half a pound of icing sugar and the whites of two eggs; shape into small potatoes and roll lightly in cocoa before leaving them to dry. "Strawberries" and "cherries" may be made by molding these out of the almond paste and dipping them into a mixture of sugar and white-of-egg that has been colored with cochineal. Strips of green angelica are used for stalks, etc.

Keep at It.

Some farmers as well as men in other lines of business, shift from one thing to another with prosperity and failure. As soon as there is a failure of a certain crop they immediately begin to talk that there is and never has been any money in the crop. There are ups and downs in all things. It is best that it is so. Light follows darkness, summer follows winter, growth follows decay, and the sun shines after the showers.

Any man ought to consider well a proposition before he undertakes it, and when he is once in it, he should stick to it till he makes something out of it. All successful men do this. A famous strawberry grower in Illinois, who has made a fortune in growing the fruit, and who grows it every year regardless of large or light crops and markets do not bother him in the least. He never stops to consider them. His business is to grow and market strawberries, and all of his energy is turned in that direction. When prices are low and others have stopped shipping and abandoned their fields, he keeps right on picking and shipping. He says that in any season high prices always follow low, and that by picking and shipping right along he gets a good average price for the season's crop.—Agricultural Journal

Apple Snow.

Stew or steam three large tart apples, cored or quartered, but not pared, drain them and rub through a fine sieve. Beat the whites of three eggs stiff, add half a cup of powdered sugar and beat again; now add the apples and beat until like a snow. Pile lightly into a glass dish garnished with jelly around the edge and serve with cold-boiled custard.



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IN GARDEN AND FIELD

By EDWARD J. WICKSON, A.M.
Author of "California Fruits," Etc.

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The Kellar-Thomason Mfg. Co.
1234 East 23th St., Los Angeles, Cal.

THE MARKETS.

San Francisco, Jan. 8, 1913.

(Unless otherwise noted, quotations represent prices paid to the growers.)

Cereals.

WHEAT.

The market has taken on a stronger tone, in sympathy with Northern and Eastern conditions, though local buying is only moderately active. The Northern grades especially are firmly held, and both Bluestem and Red have been marked up.

California Club	.....	\$1.50	@1.52½
Sonora	.....	Nominal	
White Australian	.....	Nominal	
Northern Club	.....	1.50	@1.52½
Northern Bluestem	.....	1.60	@1.62½
Northern Red	.....	1.60	@1.62½

BARLEY.

The barley market is still in rather uncertain condition, and while some change is expected before long, feed is still selling at the old range. Brewing grain is quoted lower than for some time past.

Brewing and Shipping	.....	\$1.45	@1.50
Choice Feed, per ctn.	.....	1.40	@1.45
Common Feed	.....	Nominal	

OATS.

Oats are still dull, owing to lack of demand for seed, but if the present rain is general there will probably be more movement. Holders are rather firm in their views, and no change has been made in quotations.

Red Feed	.....	\$1.85	@1.90
Seed	.....	2.00	@2.10
Gray	.....	Nominal	
White	.....	1.60	@1.65
Black Seed	.....	2.20	@2.35

CORN.

No further change is noted, though Eastern corn is still rather weak, with little demand and liberal offerings. There is some movement of California corn in the country, but little is offered here.

Cal. Yellow	.....	Nominal	
Eastern Yellow	.....	\$1.50	@1.55
Eastern White	.....	Nominal	
Kaffir	.....	1.50	@1.55
Egyptian	.....	1.70	

RYE.

Values remain nominally as for some time past, with very little demand, supplies being ample for all immediate needs.

Rye, per ctn.	\$1.45	@1.50
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BEANS.

No change whatever has been made in prices since the holidays, and trading in general remains quiet, though there has been some demand for shipment. It is expected that the movement will increase materially within the next few weeks, and holders are not inclined to press their stock on the market, as there is some prospect of better prices. Eastern prices on limas for this month are higher. While stocks are about the same as at the beginning of last year, prices are not so high, and with rather doubtful crop prospects the outlook is good for further advances.

(Prices on wharf, San Francisco.)

Bayos, per ctn.	.....	\$3.15	@3.30
Blackeyes	.....	3.00	@3.15
Cranberry Beans	.....	4.10	@4.25
Horse Beans	.....	2.25	@2.35
Small Whites	.....	4.40	@4.50
Large Whites	.....	3.85	@4.00
Limas	.....	5.60	
Pea	.....	Nominal	
Pink	.....	3.25	@3.40
Red Kidneys	.....	3.75	@4.00
Mexican Red	.....	3.90	@4.00

SEEDS.

It is hoped that this week's rain will stimulate a demand for alfalfa and some other descriptions. At the moment everything is quiet, with nothing new in regard to prices.

Alfalfa	.....	16	@17 c
Broomcorn seed, per ton	.....	\$29.00	@30.00
Brown Mustard, per lb.	.....	3½c	
Canary	.....	4	@4½c
Hemp	.....	3½	@4 c
Miller	.....	2½	@3 c
Timothy	.....	Nominal	
Yellow Mustard	.....	Nominal	

FLOUR.

Some Northern exporters have advanced their prices, but there is nothing new in local prices, though the market shows increasing firmness.

Cal. Family Extras	.....	\$5.50	@5.80
Bakers' Extras	.....	4.60	@5.20
Superfine	.....	4.00	
Oregon and Washington	.....	4.90	

Hay and Feedstuffs.

HAY.

Arrivals in this market continue very light. Up to this week the demand has been very light, and the shipments were ample for all requirements. The unfavorable weather, however, has caused a sudden increase in demand, which with limited supplies has caused a general advance in prices. The dry north wind has done great damage to green feed, and will bring a much heavier demand for hay for feeding in the interior. It is not believed, however, that the cold weather will have any effect on the new crop, as little of the grain has come up. The outlook is altogether uncertain, depending on weather conditions. Unless this week's rain is general and heavy, it will be very difficult to get adequate supplies in this State.

No. 1 Wheat, or Wheat and Oat	.....	\$19.00	@22.00
do No. 2	.....	16.00	@18.50
Lower grades	.....	12.00	@15.00
Tame Oats	.....	15.00	@20.00
Wild Oats	.....	12.00	@17.50
Alfalfa	.....	10.00	@13.50
Stock Hay	.....	9.00	@10.50
Straw, per bale	.....	60	@70c

FEEDSTUFFS.

Bran has been marked up again, but other lines, though in very fair demand, are rather easy. Cracked corn has taken a sharp drop.

Alfalfa Meal, per ton	.....	\$18.50	@19.00
Bran, per ton	.....	25.00	@26.00
Oil-cake Meal	.....	40.00	@41.00
Cocanut Cake or Meal	.....	Nominal	
Cracked Corn	.....	36.00	@37.00
Middlings	.....	35.00	@37.00
Rolled Barley	.....	29.00	@30.00
Rolled Oats	.....	38.00	@39.00
Shorts	.....	29.00	@30.00

Garden Truck.

VEGETABLES.

Owing to the cold and dry weather the first of the week, the local market is now very poorly supplied with most lines of garden truck, and it is believed that much of the crop in all districts shipping to this market has been killed. Prices show a general and sharp advance, some lines being practically out of the market, and from all indications prices will rule high for some time to come. There have hardly been enough string beans to quote, a few being held at 25c per pound, and for green peas the top price of last week is now about the minimum. Cucumbers are much higher, and tomatoes have advanced a little, though supplies are still available from Mexico. Eggplant is about out of the market. Great damage is reported to the river celery crop, and prices are accordingly high, while cauliflower, sprouts and carrots have all been advanced. Rhubarb appears to be fairly plentiful, ordinary arrivals selling at moderate figures. Onions are quiet and unchanged.

Onions—			
Yellow, ctn	.....	40	@50c
Garlic, per lb.	.....	2	@3c
Tomatoes, per crate	.....	85c	@1.25
Cucumbers, Southern, per doz.	.....	60	@85c
Cabbage, per ctn.	.....	50c	
Carrots, per sack	.....	75c	
Cauliflower, per doz.	.....	75	@80c
Green Peas, lb.	.....	10	@17½
Summer Squash, Southern, bx	.....	1.50	@1.75
Celery, crate	.....	2.50	@3.00
Rhubarb, lb.	.....	3	@5c
Artichokes, doz.	.....	75c	@1.25
Mushrooms, lb.	.....	25	@40c
Sprouts, lb.	.....	5	@6c

POTATOES.

The potato market is still in poor shape, with large supplies and buying on a small scale. Oregon stock is bringing a little better prices, but river stock has not improved.

River Whites, ctn.	.....	30	@60c
Salinas, ctn.	.....	1.00	@1.25
Oregon, ctn.	.....	85c	@1.00
Sweet Potatoes	.....	1.80	@2.00

Dairy Produce

POULTRY.

Supplies of dressed turkeys are about equal to the demand, and clean up well at satisfactory prices. The chicken market is stronger than for some time, as little has arrived from the East lately, and shipments from nearby points have been light for the past few days. Young chickens show the greatest firmness, with a sharp advance in broilers, fryers and young roosters, old stock being unchanged. Squabs are also firmer.

Large Broilers, per lb.	.....	23	c
Small Broilers, per lb.	.....	25	c

Fryers, per lb.	.....	20	@24 c
Hens, extra, per lb.	.....	16	@17 c
Hens, large, per lb.	.....	16	@17 c
Small Hens, per lb.	.....	15	@16 c
Old Roosters, per lb.	.....	9	@10 c
Young Roosters	.....	18	@25 c
Squabs, per doz.	.....	2.50	@3.50
Geese, per pair	.....	1.50	@2.00
Ducks, doz.	.....	4.00	@6.00
Turkeys, live, old, per lb.	.....	20	c
do young	.....	20	c
do dressed	.....	24	@25 c

BUTTER.

The week opened with a slightly firmer market, owing to weather conditions, and values at present are steady at about the last quotations. With warmer weather, however, prices may take a further drop.

	Thu.	Fri.	Sat.	Mon.	Tu.	Wed
Extras	...32	32½	32½	33	33	33½
Prime						
Firsts	...31½	31½	31½	—	—	—
Firsts	...31	31	31	31	31	31

EGGS.

The downward tendency of eggs was sharply checked by the cold weather, which caused great curtailment in production, and prices are firmly held at a higher level than a week ago. The outlook is rather uncertain, though there is some doubt as to whether present values can be long maintained.

	Thur.	Fri.	Sat.	Mon.	Tu.	Wed.
Extras ...	29½	28½	29	31	31½	32½
Firsts	27	27	27	27½	28	30
Selected						
Pullets...	25½	26	26	28	29	30½

CHEESE.

Cheese shows more strength than for some time past, and both flats and Y. A.'s have been marked up ½c. Monterey cheese, however, is lower, and still tending downward.

Fancy California Flats, per lb.	.....	15	c
Firsts	.....	13½c	
New Young Americas, fancy	.....	17½c	
Monterey or Jack Cheese	.....	18	@19 c

Deciduous Fruits.

Weather conditions have been very unfavorable to trading, and there is practically nothing new to report. A few strawberries and raspberries have arrived during the week, but have not been an important feature of the market, and it is very likely that none will be offered for some time to come. Cranberries find a moderate demand at the old prices. Grapes are out of the market. Apples are moving very slowly, and prices show no indication of change, as they could hardly be lower, and offerings are still far in excess of the demand. Pears, pomegranates, and persimmons move only in a very small way.

Cranberries, bbl.	.....	\$12.50	@13.50
Apples: Fancy Red, box	.....	75c	@1.25
Red Pears	.....	40	@60c
Bellefleur	.....	65c	@1.00
Newtown Pippins	.....	50c	@1.00
Greenings	.....	50	@75c
Common	.....	35	@60c
Pears: Winter Nellis	.....	1.00	@1.50
Others varieties	.....	50c	@1.00
Pomegranates, box	.....	1.00	@1.25
Persimmons, box	.....	75c	@1.25

Dried Fruits.

All prices stand as for several weeks past, and there is not much new in conditions. A little inquiry is coming out from other markets, but so far the demand has not taken on very large proportions, and packers do not appear in any hurry to renew operations. Unless the rain continues it is probable that remaining supplies will be very firmly held, and, as it is, there is some disposition to ask an advance in several lines. Evaporated apples are still dull and depressed, and small sizes of prunes are hardly as strong as they were, though the premium is still offered for larger sizes. Some Fresno interests report inquiries for raisins, and look for higher values, claiming that supplies have been closely cleaned up in the East. The New York Journal of Commerce says:

"Naturally at this season the trade in California fruit products is at its lightest, and the results of speculative operations early last year, especially in prunes, has been such as to discourage speculative operations in futures. The trend of prices throughout 1912 was downward, though there were occasional spurts at times which carried quotations up a few points, which were lost on the subsequent reaction, and on the whole, prices at the end of the year were quite a little lower than at its beginning. The large and small size California prunes have been uniformly firm since the opening of the

season, but the intermediate counts have been more or less easy. The reason for the strength of the large and small sizes is to be found in the exceptionally large export demand for these, due to the shortage in European crops. In all lines of California fruits the prices f. o. b. Coast are on a much lower level than they were a year ago. Prunes now are on a four-size bulk base of 3¼c, against 6c in December, 1911; choice peaches offer from the coast in 50-lb. boxes at 5¼c, against 9c; choice apricots that cost 13¼c a year ago in 50-lb. boxes can now be bought at 9¼c; 3-crown loose Muscatel raisins are now quoted at 3¾c, choice seeded at 4¼s, and fancy at 4¾c, whereas at the end of 1911 the f. o. b. Coast quotations on these were 4¾c, 5¾c, and 6c, respectively."

(New crop.)

Evap. Apples, per lb.	.....	4½	@5 c
Apricots	.....	9	@10 c
Figs: White	.....	4½c	
Black	.....	3	c
Calimyrna	.....	4	@5 c
Prunes: 4-size basis	.....	3	@3½c
(Premium: 1c for 40s-50s; 2c for 30s-40s.)			
Peaches	.....	4¼	@4½c
Pears	.....	4	@7 c
Raisins—			
Loose Muscatels in sweatbox	.....	2¼	@2½c
Thompson's Seedless	.....	4½c	
Seedless Sultanias	.....	3	@3½c

Citrus Fruits.

The Eastern auctions of citrus fruits did not show any effect of the California frost conditions, then being fought on this Coast. However, those in the East having fruit shipped before the freeze will doubtless get high prices for the fruit. On Monday, at the New York auction, navel oranges averaged low, the prices being from \$1.55 to \$3.15. One car of navelencias brought \$3.05 per box, while lemons sold for \$3.35 up to \$3.95. The other auction points were about the same as New York. Arizona navels brought from \$2.30 to \$7.90 per box in the New York market on Monday.

The great loss occasioned by the frost this week will cause a revision of all figures for the season's output. Up to January 4th there had been shipped from southern California, for the season, 2,567 cars of oranges and 541 cars of lemons. Instead of a total shipment of nearly 45,000 cars of oranges and lemons for the season, the probabilities are that the southern section will not ship much over half that number. Of course, it is too soon to get any real data on the situation, and it will be some weeks before the full amount of frost damage is known.

The report of the freeze in southern California was the signal for a sharp advance in San Francisco prices for navel oranges and grapefruit, though at the moment other lines are unchanged. Hardly anything is coming in, and it will be impossible to get a quotation from shipping points until the damage is more definitely known. The consuming demand here is rather light.

Oranges, per box—			
Navels	.....	\$2.50	@4.00
Tangerines	.....	75c	@1.25
Grapefruit, seedless	.....	2.75	@4.00
Lemons: Fancy	.....	4.50	@5.50
Choice	.....	3.00	@4.00
Standard	.....	2.00	@3.00
Limes	.....	4.50	@5.00

Nuts, Honey, Hops, Etc.

NUTS.

There is nothing new in the local market, business being quiet, but prices in general are firmly held. Quotations are those prevailing in the trade, as there is nothing in growers' hands. The New York Journal of Commerce says: "Indications are that there will be an absolute clean-up of this season's crop of walnuts on the Pacific Coast. Such stock as remains unsold in California is held on the basis of 16c for No. 1 Softshell and 20c for Budded, f. o. b. common shipping point. Stocks in the interior are also in very light supply, as indicated by the statement made by a Kansas City broker to the effect that No. 1 Softshells are bringing 18c in his market from first-hand receivers. Notwithstanding this, there are some holders here who are over-anxious to clean up and willing to sell, therefore, as low as 15½c to 16c ex store New York, although really first-class brands are held at 16½ to 17c. There does not seem to be any stock of Budded anywhere outside of New York, and probably not more than three holders here. In consequence of the light supply of Budded, they are firmly held at 20 to 22c, according to the degree of fineness."

Almonds—	
Nonpareils	17½c
I X L	16½c
Ne Plus Ultra.....	15½c
Drakes	12½c
Languedoc	11½c
Hardshells	8 c
Walnuts, 1912 crop—	
Softshell No. 1.....	16 @16½c
Hardshell No. 1.....	15 @15½c
No. 2	10½c
Budded	17 c

HONEY.

There is a moderate demand locally, and while there is still considerable stock on hand, it is moving off fairly well for this time of year. Values stand about as before.

Comb, white	12½ @14½c
Amber	10 @12 c
Dark	9 @10 c
Extracted, white (new)....	8 @9 c
Amber	6 @6½c
Off Grades	5 @6 c

BEESWAX.

Values are unchanged, the demand being very light, while supplies are ample.

Light	29 @30 c
Dark	25 @26 c

HOPS.

Buying has been renewed on a large scale, both in California and Oregon. The Northern business is mostly between dealers, as growers are holding for an advance. Mendocinos are well cleaned up and recent sales in Sonoma county have been at top prices.

1912 crop	10 @18 c
-----------------	----------

WOOL.

The market remains dull, with practically nothing offered in the country, and no interest on the part of buyers. Values are practically nominal.

Fall Clip:	
Northern and free Mendocino	12 @14 c
Lambs	9 @13 c
San Joaquin and Southern. 6	@10 c
Mohair	15 @28 c

HORSES.

Prices for the more desirable classes of stock are well maintained, but for the past two weeks the market has shown little activity, neither offerings nor demand being very heavy. Country buyers, however, are expected to take more interest if hay and general crop conditions improve, and the local market is pretty sure to develop a strong demand for all descriptions of draft stock. It is reported that any increase of demand will bring some very fine offerings to this market.

Heavy drafters, 1700 lbs. and over	\$300@350
Light Drafters, 1500 to 1650....	225@250
Chunks, 1350 to 1500 lbs.....	\$180@220
Wagon Horses, 1250 to 1350 lbs	150@180
Delivery Horses, 1050 to 1250....	110@125
Desirable Farm Mares.....	100@125

MULES.

1200 lbs.	\$200@250
900 lbs.	75@125
1100 lbs.	175@200
1000 lbs.	125@175

Live Stock.

Practically everything in the way of live stock has been marked up about ¼c, cattle and sheep being especially strong. The demand for dressed meats in the local market is picking up, and mutton shows a sharp advance.

Steers: No. 1	7 @ 7¼c
No. 2	6¼ @ 6¾c
Cows and Heifers: No. 1....	6 @ 6¼c
No. 2	5¼ @ 5¾c
Bulls and Stags.....	2 @ 4 c
Calves: Light	7¼c
Medium	6¾c
Heavy	5 @ 6 c
Hogs: Grain-fed, heavy....	6¾c
150 to 250 lbs.....	7 c
100 to 150 lbs.....	6¾c
Prime Wethers	5 @ 5¼c
Ewes	4 @ 4¼c
Lambs	6 @ 6¼c

DRESSED MEATS.

Steers	11 @11¼c...
Cows	10½ @11 c
Heifers	11 c
Veal, large	10 @11 c
Small	12 @13 c
Mutton: Wethers	10 @10½c
Ewes	9¾ @10 c
Spring Lambs	12 @13 c
Hogs, dressed	11 @12 c

HIDES.

The demand appears to be increasing

since the first of the year, and there is a little firmer feeling in regard to prices, though so far there has been no quotable advance.

Heavy Steers, over 56 lbs.	14½c
Medium	14 c
Light Steers, under 48 lbs. 13	@14 c
Heavy Cows, over 50 lbs. 13	@14 c
Light Cows, 30 to 50 lbs.	12½c
Kip	15 @16 c
Veal	18 @19 c
Calf	18 @19 c

Dry—

Dry Hides	23½ @24½c
Dry Bulls	19½c
Dry Kip, 10 to 15.....	24½ @25½c
Dry Veal, 5 to 10.....	29½c
Dry Calf, 7 down.....	29½c

Sheep Skins—

Long Wools	\$ 0.85 @ 1.25
Medium Wool, 6 to 9 mos.	60@ 90c
Short Wool, 3 to 6 mos....	40@ 60c
Lambs	35@ 70c

PUBLISHER'S DEPARTMENT.

The book on "Fertilizers, their Source, Purchase and Use," second edition, by Carroll B. Smith, of Redlands, Cal., has been received. This edition is larger than the first and is really a valuable addition to the literature on the subject of fertilizing, which is of the most interest to farmers of this and coming generations. Mr. Smith is well qualified to write such a book, as he has the theoretical knowledge as well as practical, having handled fertilizers as an agent and used them in his orchard and nursery work. To all growers of trees we would recommend this valuable treatise.

As this note is being written at San Francisco, rain is falling, which the weather man says will cover the State, thus breaking a serious and protracted drouth. So far the stockmen south of the bay district have suffered most from lack of pasture, while the northern portion of the State has not felt the need of rain. Tree planters have doubtless delayed ordering stock from nurseries, awaiting the outcome of the season. To such we would suggest that now is the time to get busy. Write at once your needs to your nurserymen, because the time is growing short and you may not have your order filled if you postpone much longer. Get your trees in and then put the water on the land, if enough rain does not come.

Perhaps more pure-bred stock will be brought into California this year than any previous one. From all sections we learn of orders being placed in the East for all kinds of stock, particularly beef and dairy cattle. Breeders are awake to the possibilities of great business at the time and following the Panama-Pacific Exposition, and are preparing to get into the game.

"Colonel, can you lend me——"

"No, sir, I can't. And if I could I wouldn't. I have been lending you money for a year, and you make no effort to return it."

"But I wanted to know if you wouldn't lend me——"

"And I tell you beforehand that I won't."

"Well, then, don't. I wanted to borrow your fountain-pen to make out a check for what I owe you; but if you're in no rush, I'm not."

Mr. Cityman (to Mr. Jemmy, who is after a job):—And how long were you at your last situation.

Mr. Jemmy—Three months.

Mr. Cityman—And what were you doing?

Mr. Jemmy—Three months.

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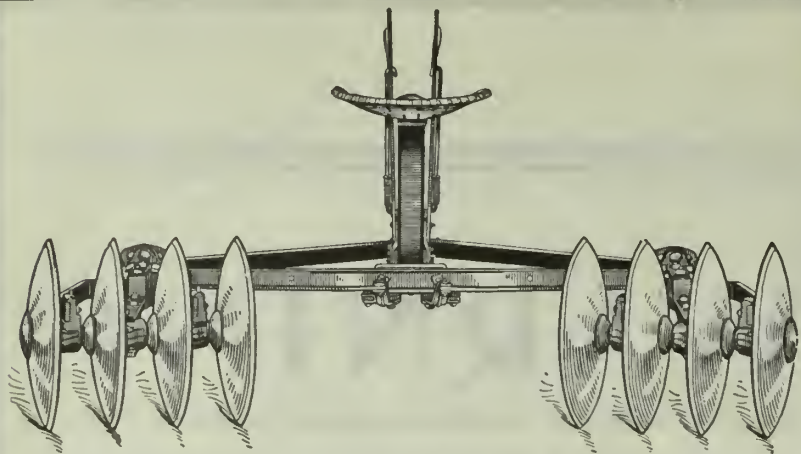
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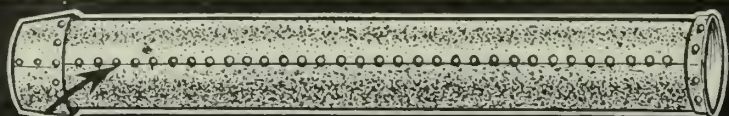
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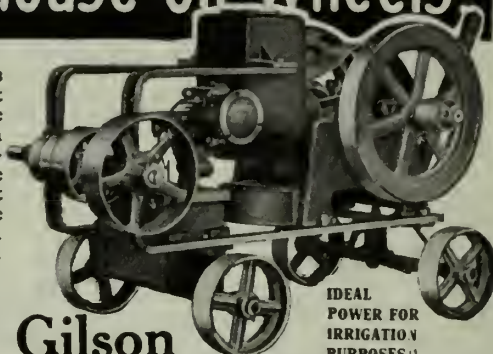
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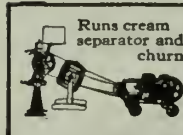
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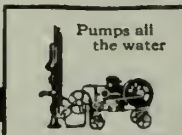
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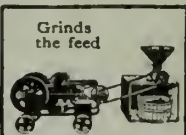
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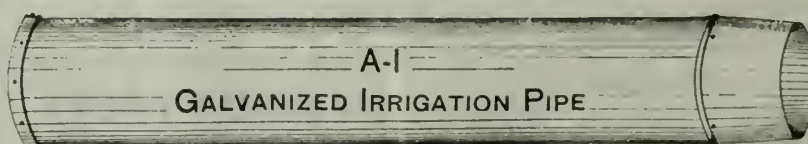
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THE PACIFIC RURAL PRESS

Vol. LXXXV. No. 3.

SAN FRANCISCO, SATURDAY, JANUARY 18, 1913.

Forty-Third Year.

Kearney's Gift to California.

[BY OUR ASSOCIATE EDITOR]

The name of Theodore Kearney and of the Kearney Estate at Fresno are known to every Californian who is interested in the agriculture of his State. The Kearney Ranch is a great ranch; it has had an interesting history; it will have a great future. The present is a good time to tell of it, for the value of agriculture is being appreciated by the public. The University of California, which owns the ranch, is being given the support that its services have merited, and with this support the Kearney Estate should take a more prominent position than it has heretofore.

Ownership.—It is a common belief that the Kearney Estate is owned, or at least managed, by the Agricultural Department of the Univer-

sity. This is a mistake. It is the property of the Regents of the University, just as a city lot would be. Kearney evidently intended to have it used for the benefit of California agriculture, and certainly it will be, ultimately. Up to the present time, however, all the estate that the Agricultural Department controlled was a few acres, which was leased from the Regents, just as other tenants would lease.

reflected in the outline of policy for the management of the property. "It is not right," said Mr. Merritt to the writer, "for the University to undertake to solve the problems of the public and leave her own problems unsolved. Our aim in the management of the Kearney Estate will be to overcome those difficulties that we meet, thus learning to overcome the difficulties met by others." How this is being brought about will be taken up later.

The conception of Dean Hunt of the College of Agriculture is known to our readers. When the ranch comes into the hands of the Agricultural Department of the University and occasion calls for it, a Farm School, like that at Davis, will be established. That at Davis will specialize on animal husbandry. That at Kearney Park will deal particularly with viticulture, horticulture, forage crops, and other soil products. It is particularly well fitted for this, being in the greatest viticultural and horticultural section of the State.



Glimpse at the Residence and Ornamental Grounds, Kearney Estate

sity. This is a mistake. It is the property of the Regents of the University, just as a city lot would be. Kearney evidently intended to have it used for the benefit of California agriculture, and certainly it will be, ultimately. Up to the present time, however, all the estate that the Agricultural Department controlled was a few acres, which was leased from the Regents, just as other tenants would lease.

The detailed management of the ranch was in the hands of R. Friselle, Kearney's manager, up until his death last September. Since that time it has been managed by his son, S. P. Friselle. Thus it can almost be said that the property has been handled as Kearney himself would have handled it had he lived.

The ultimate management of the Estate is in the hands of Ralph P. Merritt, as Comptroller of the University of California. It is a matter of congratulation that Mr. Merritt is a graduate of the Agricultural Department of this University, and therefore has the appreciation of the future and possibilities of California agriculture that a mere business man might not have.

Policy.—This insight into the needs of California agriculture is

Nature.—The Kearney Ranch is one of the greatest ranches in California. Originally it was a solid block of 10,000 acres. Small ranches all over it were sold by Kearney to private parties, and the ranch now comprises only about 5,380 acres, pretty well cut up by small farms. Of this 5,000 odd acres, a large proportion, especially of the best land, is leased out, so that the actual acreage managed as a ranch is limited to the vineyard, some good alfalfa land, and a fair amount of land that contains too much alkali to be as good as it should be.

Kearney's Personality.—Theodore Kearney was a remarkable man. He was of humble origin, but with the personality and aspirations of a feudal baron. Without relatives and without personal friends, of an abrupt and rather domineering disposition, he yet wished to be high in the public esteem. Everything he touched, everything he owned, had to be the best. The boulevard he laid out from the city of Fresno to the Kearney Park and through the ranch, fourteen miles in length, will be, as long as the trees bordering it last, one of the show places of the State. To lay out the Kearney Park of 260 acres

(Continued on Page 68.)

Pacific Rural Press

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FRANK HONEYWELL - - - - - Manager
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D. J. WHITNEY - - - - - Associate Editor

CALIFORNIA WEATHER RECORD.

The following rainfall and temperature record is furnished the PACIFIC RURAL PRESS by the United States Department of Agriculture, Weather Bureau, at San Francisco, for the week ending at 5 P. M., Jan. 14, 1913:

Stations.	Rainfall Data.			Temperature Data.	
	Past Week.	Seasonal to Date.	Normal to Date.	Maximum.	Minimum.
Eureka	5.03	21.84	19.94	54	84
Red Bluff.....	2.90	11.11	11.69	50	28
Sacramento.....	.46	3.32	8.44	54	30
San Francisco ..	1.71	6.69	9.86	54	36
San Jose.....	.66	2.30	7.18	58	30
Fresno.....	.38	1.69	4.80	58	28
Independence....	.00	.70	4.24	48	6
San Luis Obispo	1.14	2.21	7.99	58	28
Los Angeles .....	.70	1.64	6.27	68	36
San Diego .....	.90	2.52	4.06	66	34

The Week.

How cold was it? We do not exactly know. There are some figures at the head of this column which are official and unimpeachable for the places where the thermometers were in the towns indicated, but there were colder places in the environment of all these towns, no doubt. It will take some time to determine where it was, actually coldest, if, in fact, it should ever be known. Our guess last week, that "similar temperatures would be found in comparable places throughout the State," still holds good, so far as we know.

How much cold will an orange tree survive without serious injury to mature wood? We do not know. Evidently a citrus tree will endure a lower temperature than we deemed possible two weeks ago. Since our last issue we have been in valley places where the thermometer fell below anything previously recorded, since the American occupation, and we have seen citrus trees which gave no sign of serious injury. In fact, all that could be seen was a certain amount of leaf curling on the outmost shoots—nothing more than one would expect to see after a run of dry wind. The older leaves on the same trees had not changed pose or aspect; the bark was smooth and sound. There was nothing to indicate that the tree might not fully resume its normal aspect, unfurl the curling leaves and start new growth far out on the twigs, as its habit is, for there was no sign of injury even to the twigs carrying the curling leaves. And trees exactly in the condition described had passed through a temperature of 16° Fahr. How many leaves they may possibly lose later, and whether there will be some killing of twigs cannot be told so soon, but with the worst possible of such minor injuries it will remain a surprise that citrus trees could go through such freezing temperature and retain life in their aerial parts.

Attitude of the Tree Toward Low Temperatures.

It seems perfectly clear that the trees to which

we allude had worked out their own salvation through the resistance afforded by the condition of wood and leaf produced by attainment of maturity. The tissues were tough and hard as leaf and wood structure of a citrus tree ever become; the percentage of freezable moisture was at a minimum; the cell walls were at their maximum of strength. It is at least supposable that by this process a plant comes to its highest resistance of ill effects by stress, whether stress come through temperature extremes or drought extremes or wind power or what not, which tries the souls of plants. Now in the particular place where we saw trees which had apparently acquired this quality, there had previously been at work all the recognized agencies influencing maturity and permanency. The fruit had matured and been removed. There had been for about two months a marked lowering of temperatures which is characteristic of autumnal progress toward the opening of winter. There had been decrease in soil moisture; since there was no fruit to finish, irrigation had ceased and the trees were meeting the burden of lessened transpiration by what they could get from a scant rainfall. Everything which makes for lessened vegetative energy in a plant had visited these trees and they were subsisting upon simply a maintenance ration of nourishing and sustaining influences. They were at a minimum of activity and a maximum of stress-resistance; apparently a temperature of 16° Fahr. did not phase them. We cannot know what more they would endure, but we do seem to know that whatever greater activity or condition of environment could bring more free water into their tissues, would also have made them liable to whatever different degrees of leaf-killing, twig-killing, bark-bursting could be produced by the mechanical force of expansion which accompanies the solidification of water in the process of freezing. They had in their tissues, apparently, less water to freeze and possibly greater cell strength to hold what they had. It has been demonstrated in the winter killing of other fruit trees in wintry climates that the structure of resistant trees is accompanied by a fortified cell-structure. It may therefore be a reasonable assumption, until someone demonstrates otherwise, that the change in cell structure in process of maturing may increase resistance to freezing as well as the reduction of moisture content of the tissue. And this may be true, although it has been demonstrated that extreme low temperatures have less effect in tree-killing if moisture extraction is not allowed to go too far. But all that relates to deciduous trees and has to do with death of tissue by desiccation rather than with destruction of tissue by ruptures caused by expansion of enclosed water. The evergreen tree may be liable to both, under certain conditions perhaps, but it is clearly the latter which is involved in our injuries to citrus trees, and apparently the tree by preceding preparatory processes can protect itself against serious suffering by a temperature of 16° Fahr.

Recuperative Conditions.

Avoidance of permanent injury by frost is largely conditioned by influences which allow a resumption of relations between sap and its containers, and it is well known that maintenance of a low temperature, just above the point which causes increased injury, makes for restoration of normal condition in the tissue. This is supposed to hold only in cases in which cell-bursting and bark-lesions have not occurred or have occurred only to very slight extent. It is of course possible that even actual ruptures may produce greater effects if the return to high temperatures is too sudden to allow upset conditions to adjust them-

selves in the adjoining tissue. It is not possible at the moment to measure the effect of such influences, believed to be favorable, but it is possible that such influences may have had something to do with the slight injury to foliage which we saw about 60 hours after the occurrence of the temperature of 16° Fahr. above noted. The temperature rose slowly; there was no intrusion of sunshine; there was quite an amount of snow, slowly melting, and a dense cover of cloud from which light misty rain occasionally fell. The trees were in snow, rain or cold mist from the low point of 16° until the time of our visit, 60 hours later, and how much longer we do not know. Apparently the trees had ideal conditions for resistance and ideal conditions for recovery also.

Thus we outline what we saw during the week. We are not writing geographically now, and we do not say where the observations were made, except that they were made with official thermometers in a well known citrus district which has been making considerable shipments for a good many years. We expect to return to the place as soon as conditions afford a clear demonstration whether our present conviction of the comparative innocency of 16° is true or otherwise. So far as the observation has gone it surprises us. We have said nothing about the fruit. It had been for the most part marketed some time before, but of course plenty of specimens remained. We hazard no comment. The fruit ought to have been frozen solid, but it was not; what sort of injury it chose to take we shall know later. We have had all the surprise we can stand this week.

Immense Losses in Citrus Fruits.

In parts of the State from which orange and lemon crops are harvested and shipped during the winter and spring months there have been immense losses by frost, which will have far-reaching effects, because the revenue derived from citrus sales is distributed throughout our whole population. From estimates made by transportation companies, the anticipated losses in dollars is put roundly in this category:

By growerstwenty millions
By handlersfive millions
By railwaysten millions

There are several general objections to be urged to this line of figuring: first, there was never a citrus crop of such value gathered in this State; second, of the crops hitherto gathered, the growers never realized so large a share of gross returns—even if all boxing and packing house charges are to be taken from the growers' receipts, as we presume these statisticians intend. The common belief is that after the dealers and transportation companies secure their fixed charges, the balance goes to the growers, for production and getting the produce into the cars, and that as a rule only about one-half of the sales' receipts at delivery points goes to growers for furnishing the fruit in shipping form. On the basis of the estimate above, we really have to congratulate the dealers and transportation interests for escaping with such relatively small losses. The general truth is, however, that losses have been great all around, and when loss is measured by disappointment and hardship, the grower gets most of that and deserves the warmest sympathy and consolation.

Relative Position of Citrus Production.

In view of the great losses encountered and the recent popularity of citrus undertakings and enterprises, it is possible that from the point of view of California agriculture as a whole, the importance of failure in this line of products for a year may be overestimated. It is therefore desirable

to understand just the relation citrus fruit production bears to the total agricultural output of the State. We take the census report just issued, which gives "farm values" of California products for 1909. There has been increase since then, but all lines of production have advanced, some of them quite as fast as citrus fruit production, and their relativity is preserved:

Dairy products	\$20,443,977
Poultry products	14,684,000
Meat products	33,627,000
Field products	100,409,039
Orehard fruits	18,358,897
Citrus fruits	16,752,101
Grapes	10,846,812

We thus take a few of the leading products to show that great and highly esteemed as are our citrus fruits and significant as they are in winning interest and investment for California they are only one of our several main lines of agricultural activity and, serious as a considerable loss of the crop may be individually or locally, it has perhaps already been made good to the State by the few inches more of rain and snow brought to the season's total by the same storms that wrought havoc in the citrus groves. California is great in her special products, but her incomparable endowment lies unquestionably in the breadth of productive scope which employs her unique variety of adaptations.

Agricultural Credit.

The losses of the citrus growers are giving point to many plans which are being laid by the solons at Sacramento to secure loans for agricultural purposes at interest rates and terms which are fractional of those thus far available. The interest manifested at Sacramento is one of the products of the general agitation of fair money for farmers in which we have tried to do our share. Among the several propositions thus far advanced it is impossible to see what form the final provision may assume, but it certainly looks as though there would be something doing ere long. One proposition looks to placing the millions accumulated in the State Treasury at the service of farmers instead of bankers from whom it now secures two per cent. Another is to levy taxes in counties or districts which shall be loaned by county treasurers at not to exceed four per cent for terms covering ten years, if desired—the accruing interest to be used as taxes, with the prospect that such invested funds might ere long yield money enough to meet county expenses. At the same time there comes from Washington the announcement of a bill in Congress to provide for the establishment of a bureau of farm loans in the Treasury Department, with a Loan Commissioner appointed by the President. The Secretary of the Treasury would be authorized to raise funds for loaning to "bona fide tillers of the soil" on farm mortgages, by the issue of Government bonds at not to exceed 4 per cent interest. The loans would be made on farms at least one-half of which must be under cultivation.

At the same time there is evidently a desire to know more about what Europe is doing for agricultural credit, for Senator Birdsall of Placer county has introduced a bill in the legislature for the appointment of two California members of the commission which is going to Europe this year under the auspices of the Southern Commercial Congress to study the plans of loans made agriculturists in countries of the Old World. This is in accordance with the position taken by Governor Johnson at the recent meeting of Governors at Washington and is the California idea which Mr. Lubin proposed to the Southern Commercial Congress, as we noted at the time. It will be for-

tunate indeed if the experience of the citrus growers should awaken the State to the fact that agricultural enterprises are of such a character that they should be forever freed from the exactions which the financial interests have, perhaps innocently, forced upon them since history began.

Queries and Replies.

Querists must submit full names and addresses.

Pruning Old Apple Trees.

To the Editor: I have an old orchard containing some apple trees about 40 years old—trees well shaped but with plenty of main branches and limbs all very long. The trees bear profusely in alternate years but the fruit is small. In pruning would you advise cutting out some main limbs where there are over 3 or 4 and thus making big wood reduction (where sunburn protection can still be guarded) or would you only shorten in the branches and thin the fruit severely?

I note your book "California Fruits" says pruning late in the dormant season is preferable for promoting fruit growth. Would you advise deferring the above kinds of pruning until after March in Santa Cruz mountains; elevation half a mile?—R. E. C., Los Gatos.

We would not remove main branches unless they are clearly too numerous or have been allowed to grow to interference with each other or have become weakened or feeble in some way. In such cases the space is worth more than the branch. If the tree has a fair framework we certainly would not disturb it in order to get down to an arbitrary limit of three or four main branches: sometimes the tree can carry more. If after the tree is too thick, thin it out by removing side branches of more or less size—saving the best, judging by both vigor and position. Work through the whole top in this way until you reach the best judgment you can form of enough space and light for good interior foliage and fruit. Apple branches should seldom be shortened, and when this seems desirable, cut to a side branch and not to a stub which will make a lot of weak shoots or brush in the top of the tree.

We cannot remember either thinking or writing that "pruning late in the dormant season is preferable for promoting fruit growth." We have no reason to think that it has any such effect. Pruning late in the growing season, that is, summer pruning of trees which are making too much wood growth, does as a rule promote fruiting. We doubt that your trees need such treatment. The probability is that they need winter pruning to promote growth and possibly they need better cultivation fertilization and perhaps some water in the late summer to help them hold their leaves later and make better fruit buds. Pruning "late in the dormant season" finds the tree ready to heal over cuts quickly because the sap is rising and getting ready for business. Therefore removing large branches is best done late in the dormant season, but such pruning has no particular reference to fruiting that we know of.

Grafting-Over Walnuts.

To the Editor: Would it be advisable to graft into the Santa Barbara soft shell some other kind of a walnut? The trees are fifteen years old, and what would be a good month to graft them?—S. L., Winters.

If the trees are healthy and vigorous and are not bearing satisfactorily crops of good nuts they may be grafted over to advantage with scions of any tree in the neighborhood which is bearing plenty of good nuts. Or they may be grafted over with scions of the varieties now being most widely planted in central California—the Franquette, Mayette, Willson's Wonder, Concord, etc.

Graft first before the new growth starts as indicated by the swelling of the buds.

Pruning Frosted Citrus Trees.

To the Editor: Kindly advise the writer regarding pruning of two-year-old orange orchard, also nursery stock buds that are badly injured by frost; how much to prune and at what time. Also, is it advisable to irrigate orchard at this time?—C. E., Ducor, Tulare county.

As soon as you can see how far injury has gone down the branch or stem, cut below it, so that a new shoot may push out from sound wood, and heal the cut as soon as possible. This applies to growths of all ages. In the case of buds, if you can only save a single node you may get a bud started there and make a tree of that. In the case of trees, large or small, it is always desirable to cut above the forkings of the main branches, if possible, and when this much of the tree remains sound, a new tree can be formed very quickly. If the main stem is injured, bark cracked, etc., cut below the ground and put scions in the bark without splitting the root crown; wax well or otherwise, cover exposed wood to prevent checking. If this is successfully done, root-rot may be prevented and the wound covered with new bark while the strong new stems are developing above. The ground should be kept reasonably moist by irrigation in the absence of rainfall.

Treatment of Bark Injuries by Frost.

To the Editor: I have a 20-acre lemon grove, mostly two years old, hurt by frost. The bark on some of the trees has split in place. Is there anything I can do to help same, by waxing or covering up or otherwise. Am anxious to save top if possible. Any information will be appreciated.—Owner, Los Angeles.

If bark is cracked and loosened by frost around the branch or stem, we know of no treatment but cutting back to uninjured wood below—even to the root crown, as prescribed in answer to another querist this week. If there is injury in spots and not encircling the branch or stem, treat as you would any other mechanical injury cutting around the injured spot to sound bark, covering the exposed wood with thick lead and oil paint or with asphaltum, grade D, or with grafting wax. If the wound is in the sun, the covering should preferably light colored to reflect heat and guard against sunburn of the new bark, which will start to grow from the edges of the sound bark around the cut. We know of no treatment which will cause frost-lifted bark to reunite with the wood surface below it.

Training Old Grape Vines on Pergolas.

To the Editor: I have four acres of Muscats about ten years old. I want to train some of them over a pergola. I propose to saw off a little of the top limbs, which have no strong shoots, some being half rotted away, then cut off completely the thin wood, leaving, say, three of the strongest shoots: these I propose to just trim the ends off. I further intend to water and manure next summer, as well as sulphur. The rest of the Muscats I propose to cut out all growth below the head (I think these are what you call suckers in your book, "California Fruits"), cut out the weak shoots and prune the new growth to three buds. I want to train six Mission vines (trunk a foot thick) so that they will cover a large pergola. Shall I cut out all but, say, six shoots and trim the ends of these?—Suburban, Pasadena.

You can certainly grow the vines which you mention, in the way you propose, and are likely to get very satisfactory results with such careful operation as you indicate. You can select the heavy wood growth of the vine which best serves your purpose, saving away the undesirable parts and paint the wound over. In fact, the operation which you propose seems perfectly feasible if followed in the way you specify.

How to Sell Dried Fruits in England.

To the Editor: After an interval of eleven years, I am more than ever convinced that there is a very large and only partially exploited market in the United Kingdom for California dried fruits. Dried peaches, apricots and pears are plentifully displayed in the grocer's windows at all times of the year, but prunes, except some very small and inferior ones, do not seem to be much in evidence until the holiday season approaches. Whoever eats any of these fruits properly cooked likes them, but the knowledge of how to cook or use them is only imparted in isolated cases by some chance individual, like the writer, who may be visiting in this part of the world once in a decade.

Advertising.—The questions are, first, does California want to extend her market in this direction, and, second, is she willing to do any advertising? Assuming the answer to the first to be in the affirmative, no one will dispute the statement that it is necessary to advertise, and it only remains to decide who will do it, and how? California prunes are retailed at an almost uniform price of 14 cents a pound. The best, processed prunes, imported from France, up to 60 cents a pound. California peaches, 12 cents, apricots, 16 cents, pears, 16 cents, and Australian apricots, 20 cents. Australian dried fruits were handsomely displayed at a recent grocers' exhibition held in London, but none from California. At the various Australian exhibits were attendants who distributed circulars, on the envelopes of which was printed, "With the compliments of the South Australian Government," accompanied with the official stamp. A part of the information therein is as follows:

IMPORTANT NOTICE.

"Insist on having South Australian Sun Dried Apricots, because one pound of these apricots will yield the maximum of fruit when soaked, and the flavor, owing to the nature of the South Australian soil where the fruit is grown, is delicious, and loses nothing in character from the freshly picked fruit.

"Do you realize that when you purchase South Australian Sun Dried apricots at 10d (20c) per lb. you are buying the finest apricots in the world at equal to 2d (4c) per lb. for fresh fruit?"

Also, knowing the English taste for jam, these directions are given:

"JAM.

"Dried apricots make jam of excellent color and flavor and at the minimum of cost. 1 lb. of dried fruit will make 4 lbs. of jam at a cost of less than 4d (8c) per lb.

"To make jam, prepare the dried fruit as for stewing (directions given in circular as to rinsing, soaking, adding syrup, and simmering). Place the required quantity of soaked fruit in a preserving pan, add 1 lb. of the best white sugar for each pound of soaked fruit. The time of boiling is as with the fresh fruit, but it is necessary to add more water."

A Bogus Jam.—As is well known, apricot pulp is imported here from California. Part of this is made into jam by firms well known on both sides of the Atlantic, one in particular, whose brand is frequently seen in San Francisco. This is sold in glass jars at 12 cents a pound. It has a slight flavor of apricot, and is of a pale, amber color. To hazard a guess, I should say that half or three-fourths of it was vegetable marrow, which is very commonly used here as a base for many preserved fruits, owing to its tastelessness, cheapness, and generally high price of any good fruit.

The point is, that the English consumer is paying 12 cents a pound for a jam which is only partly fruit, when he might just as well have an abundance of the best apricot or peach jam, unadulterated, at 8 cents or less a pound. Peach would be less, as half the amount of sugar would be ample and the fruit itself is cheaper.

Prune Jam.—I had occasion to point out, some years ago, that a surplus of prunes might at any

time be run down into jam, most of the pits being easily removable during cooking. The advantage is that no sugar whatever is required, the natural sweetness being sufficient. Edward Berwick, so well known in Santa Clara Valley, will bear me out in this. The United States is surely a market for such a delicious and cheap conserve, but Great Britain even more so if it were but known. In this case, of course, the jam would be made over here from the dried fruit.

Why Australian Fruit Sells.—At the recent "Grocers' Exhibition" in London, dealers told me that Australian dried fruits were bought up on arrival, and the reason is that they are intelligently advertised, and this advertising must be, primarily, educational. Those who won't eat "American tinned fruit" in any form, do eat it after English manufacturers have put it into glass in some other shape. A notable instance is with small sized, rather under ripe "pie fruit" from California, which is taken out of the cans and used with other fruits as a "Sweet Fruit Pickle," put up in very elegant long-necked glass jars. Of course the name "California" does not appear, and a representative of the firm showed me how it was done. So with Messrs. A & B's apricot jam. California supplies the apricots but no one knows it. England supplies the vegetable marrow, and no one knows that.

The Result.—Australia and Canada are advertised everywhere as the sources of supply of all the best fruits, and South Africa will soon follow. "Canadian Grape Juice," as the "pure non-alcoholic wine of the grape" is recommended for all those who object to alcohol. I was under the impression that California was the home of the vine, and that grape producers complained of low prices, and yet Canada is getting ahead of her even with the grape. Australian Burgundies of several brands are in great favor, and have enormous sale. Years ago California wines were placed on the English market in considerable quantity. Unknown, and almost unheralded, they were sneered at by the trade and are now never called for.

Ways to Advertise.—The only way to advertise in any unexploited market is to create a demand first by exciting curiosity and to have the goods to back up the demand when it comes. This was Australia's way with her wines, and it paid; this is Australia's way with her fruits and it is going to pay. Canada is already following suit with apples and now with grape juice.

Right in the heart of the city of London, where some buildings were being torn down to widen the thoroughfare, the surrounding fence was artistically painted with views depicting fruit and farm scenes in Australia. Millions of people see it and on whom it imprints a lasting impression.

In the market place of one of the first large cities I visited, in the Midland counties, the first thing that attracted my attention was a covered van, on wheels, from which a man was handing out literature and giving advice to those who were interested in Canada, for fruit, grain, or stock farming. And the governments of the respective provinces in these various countries assist in this work. It is "class legislation" to advertise the land and what may be done with it. Is not everyone who walks or rides anywhere on the land benefitted, whether he lives in city or country, and whatever may be his particular business?

Ways to Advertise.—Methods of advertising easily suggest themselves, but, above all, advertising must be persistent. It also must be along educational lines, and to that end the Cinema is the first means, if a great and present opportunity is now to be made the most of. The Picture Palace shows are much more of a recognized educational institution here than in the United States. The Scala Theatre, Piccadilly, London, is featuring the building of the Panama Canal to crowded houses. Today's papers state that Covent Garden Theatre, with an orchestra of one hundred, is to be devoted to the Cinematograph; which comes as a shock to many; but it is a "sign of the times."

graph; which comes as a shock to many; but it is a "sign of the times."

With the opening of the Panama Canal, and the coming San Francisco Exposition, California still has the chance to retrieve much that she has lost, if she will seize this opportunity and show herself to English people as what she really is. Much may be done, as a start, by moving pictures; much more if such educational advertising is properly followed up, and with a plentiful supply of the best products to "make good."

Interest in California has slackened because California herself showed no interest; this undesirable condition was augmented when the United States Senate took action in regard to Panama Canal tolls which has been criticised as much in the United States as in Britain, but which feeling is becoming less intense, and, so far as California is concerned, I believe will soon cease to exist, since the publication of the petition for an honorable and amicable settlement of Great Britain's protest, signed by President Wheeler, President Jordan, Mgr. Riordan, Mr. Kahn and others.

The Happy Foreigner.—One other word: I believe in California; I preach California whenever opportunity occurs, and that is almost daily, but I fail to see any good resulting from filling California farmers with the fantastic delusion that European countries are "effete," or lacking in progress. Isolated instances might be cited here as well as in the United States in support of such a proposition of course. The "yellow" press stories about dire poverty, distress among farmers, starvation amongst laboring classes, is all rubbish. There is no more here than one finds the world over in any large cities. Arriving in England after the coal miners' strike, I spent some time in the coal districts and found the miners spending almost every evening at a picture palace; all smoking, all looking well-fed and happy. Among the farmers after one of the worst harvests ever known, owing to continued wet weather, there is evidence of prosperity everywhere. I find the most up-to-date methods and machinery; and "scrub stock," whether of horses, cattle, sheep or swine, are nowhere to be seen. Much produce is sent to market by motor-truck, and motor as well as traction plows are very common. In the orchard districts (very small as compared with California), all cultural methods, spraying, etc., are of the best. Add to all this the adverse physical conditions, and it should be more than a mere postulate that a farmer who makes a living under such existing adverse conditions would get rich where weather and climate favored him.

LEONARD COATES.

97 Wantage Road, Reading, England.

KEARNEY'S GIFT TO CALIFORNIA.

(Continued From Page 65.)

around his residence, he brought out the best landscape architect he could secure, R. Ulrich, the man who laid out the grounds of Del Monte and the grounds for the World's Fair at Chicago. He built a magnificent residence, with walls of sun-dried adobe three feet thick, which is cool on the hottest day of summer; dug out a lake in the park, and with the dirt built a mound upon which to construct a chateau to cost half a million dollars; but he put the ranch several thousand dollars in debt to build the chateau and died before the work was started. By his personality he built up a Raisin Growers' Association that pulled the industry out of the most disastrous condition possible, and by that personality wrecked the Association again.

History.—The Kearney Ranch was not founded as a ranch; it was founded as a real estate venture. The West Side, where it lies, was at first considered merely an alkali waste. Kearney saw its possibilities and secured 10,000 acres a few miles west of Fresno. He brought water to it, laid out the boulevard and the park to prove the possibilities of the land, established the nucleus of a settlement at the park, and in 1892 opened the land to settlers in a great auction held in Fresno.

The park, by the way, is half purely ornamental and half commercially productive. It contains the rarest kinds of trees and shrubs. Kear-

ney was a rose fancier, and roses of all kinds were purchased at an expense of thousands of dollars. In the open spaces between the trees and shrubs, alfalfa is grown. Around the outside and in blocks elsewhere, oranges and olives are grown. The park has been kept up fully since Kearney died and is a little more than self-supporting, in spite of the large acreage to ornamentals.

When the sale was held the raisin industry was in good condition, and much land was sold. The buyers nearly all bought on time, and most of them planted quite a few vines, practically all Muscats, the standard raisin grape. Then came the dark ages of the raisin industry. Vineyards could not pay operating expenses, to say nothing of returning a surplus to pay off mortgages. Buyers in the Kearney tract met financial disaster; they sold to outsiders, or simply gave up the fight and the land reverted to Kearney. He never had an acre of Muscats set out. All of the Kearney vineyard, once nearly a thousand acres in extent, was planted by purchasers and reverted to the seller. The 3,500 and more acres not in the Estate were saved by purchasers or others who took it off their hands. Kearney was thus forced to farm his land, keeping the vine-

Kearney Ranch are hurt by alkali. The vineyard is being cut down at the rate of about 50 acres per year, and some of the alfalfa land is hit also. When the alkali is overcome it will mean many thousands of dollars of wealth to the estate, and it will mean a demonstration of the value of scientific drainage to the whole West Side, an encouragement to the formation of drainage districts.

It is planned to tile drain 160 acres of alkali land on the ranch according to the system that will be adopted if drainage districts are formed, under the direction of Frank Adams of the U. S. Bureau of Irrigation Investigations. The land will be flooded from a canal on the higher side, and the drainage water, containing the alkali that it will wash out, will be led into a sump on the lower corner and pumped into a canal passing close by. If successful, as other such systems have been, it will make the best kind of land out of nearly valueless property at small expense. The University in solving its own problems will solve the problem of others.

Raisin Production.—Raisin improvement is not prospective, like the drainage, but it is in the way of accomplishment. There are about 700 acres in vineyard, some of which is hit by alkali,

out. The only animals kept are the mules to do the ranch work, about fourteen mares from which the mules are raised, two or three cows for milk, and some hogs. It is intended to put up some model hog-pens for these. Only enough alfalfa land is kept to raise hay for the stock, with a little surplus, and the land that is too alkaline for vineyard or alfalfa is planted to barley for hay.

Kearney intended to make the ranch the headquarters for the settlers on the property and to put up a store. This is still run by the University for the benefit of the management and the convenience of tenants and freeholders in the ranch.

What the future will bring forth the future only will tell. Kearney was one of the wonderful men of early California; he left a wonderful property in the hands that would use it to do the most good. The management is using it to demonstrate scientific and practical farming, to solve the problems of the district. The ranch is now practically free financially, and great plans are made for it. The people of the State are awaking to support the Agricultural Department of the University, for whose benefit it will be used, and the way is open for abundant progress.



Kearney Avenue, Leading From Fresno to the Kearney Estate.

yards, especially, in his hands. Alfalfa land he usually rented to tenants. Possibly the necessity of getting better prices for raisins to make his farming profitable and to sell his land had a good deal to do with his activities in the Raisin Associations.

Progress.—When Kearney died the estate was burdened with a debt of \$200,000. It also was burdened by a suit for ownership against the Regents, and until this was settled it was in the hands of the Mercantile Trust Company of San Francisco. Since that time, however, the debt has been gradually reduced until now the value of the raisins on hand is enough to pay off all the debt and leave the property clear. Once the debt is paid, it is clear that the ranch is on a better basis for development than when there was a burden against it. Run as it is, and not as a big ranch, the activities are limited. Only two features of problems and progress can be dealt with here: drainage and raisin production.

Drainage.—Drainage is the great problem to be solved on the ranch and in the district. Remove the alkali and no better land can be found anywhere, but irrigation and a rising water-table brings the alkali up, kills the crops and kills the land. The whole West Side is threatened where gravity irrigation is practiced; tens of thousands of acres are rendered practically valueless and will continue so until drainage is successfully accomplished.

Drainage will do the work, and there is talk of making drainage districts through the West Side, which will mean a heavy assessment on property, with many owners doubtful of the value of the drainage. Several thousand acres of the

and yet there were 735 tons taken off this season. The tonnage for the past few years has been increasing at the rate of about 50 tons per year, while the acreage has been decreasing at the rate of about 50 acres per year. One block produced approximately $1\frac{3}{4}$ tons per acre this season.

The increase has been largely due to better pruning methods. The vineyards were set out by many owners, mostly inexperienced, and the original pruning was badly done. The policy in pruning the past few years has been to build up and lift up the head of the vines, to round them up, to prevent the decay that develops when the heads are wide and flat and open to the sun. Results speak for themselves.

Fertilization.—The method of fertilization demonstrates how alfalfa and dairying fit in with other kinds of farming. Most of the land leased out is alfalfa land, used for dairying. According to the leases, the manure all goes to the estate; it is not put back on the alfalfa. The manure is most valuable for the nitrogen it contains and alfalfa can get all the nitrogen it wants from the air. Thus in the fall the corrals are cleaned and the manure put on the vineyard, where all of the plant food will do good, and any fertilization the alfalfa needs is attended to by commercial fertilizers.

The vineyard is gone over once in two years or oftener, enough manure being put on to make up for what the raisins remove and to keep the soil in excellent physical condition. To this, as well as to the pruning, must be given the credit for the success of the vineyard.

Other Features.—As we have said, outside of the vineyard most of the good land is leased

It can perform a great service as a ranch and a great service as the location for a farm school.

CUT OUT SURPLUS WALNUT TREES.

Winter usually affords leisure to cut out surplus walnut, or other, trees when a grove is planted too thick. People often hate to lose a nice big tree when they have gone to great expense to get it, although there is a big advantage to the other trees by so doing.

On the Bishop Ranch in the La Patera section of Santa Barbara County several years ago, every other walnut tree was cut out of a twenty-five-year-old grove, the trees originally being set twenty-five feet apart. The advantages were at once apparent, the grove yielding ten per cent more the following season than they did under the old system and the crops have been getting better ever since. Sixty feet is about close enough for mature trees in a walnut grove and when the ground is so shaded that the sun and air cannot penetrate the trees will not thrive.

SUGAR AND ACID IN ORANGES.

The Spokane health experts have fixed a standard for a properly ripened orange. Following a series of tests in the city laboratory of oranges offered for sale in Spokane, Health Officer J. B. Anderson prohibited last week the sale of all oranges in which the ratio of sugar to citrus acid is not seven to one or greater. This ruling is directed against fruit shipped green from the orchards and allowed to ripen on the way or ripened by artificial means, such as "sweating."

Fruit Hints From Palestine.

[By OUR ASSOCIATE EDITOR.]

No other one country has as great interest to the average American citizen as has Palestine. For Californians especially, this country ought to be especially interesting as it resembles California in climate and topography more closely than any other country that we know. At the Fruit Growers' Convention just held at Fresno, Mr. A. Aaronsohn, director of the Jewish Agricultural Experiment Station in Palestine, was a visitor and addressed a meeting of the County Horticultural Commissioners upon "Fruit Growing in Palestine." Some of the facts brought out in his address should be of great interest to our fruit men everywhere.

Although only about one-twentieth of the area of California, nearly every section of California has its approximate counterpart in Palestine. The latter has similar soils, rainfall, seasons, and temperatures. Our fruits are known there, a few not grown here also being grown more or less commonly in Palestine. The latter country has the advantage over California in that the varieties grown have been for thousands of years tested and acclimated.

Oranges.—Palestine is rapidly coming forward as a citrus district, though its small area prevents a great total export. About 1,200,000 boxes are shipped per year, which output will be doubled in three years time. The sole variety grown is the Jaffa, also grown to a small extent here. There are radical differences, however, between the Palestine Jaffa and the California orange, probably owing mostly to methods of culture. The Palestine fruit can be shipped to Liverpool in the latter part of September, though it would be in better condition later on. Here it is a medium late orange. Its quality in Palestine makes it bring the top price in Liverpool. It also gets the hardest kind of handling, and yet unloads with only 10 to 12% loss. This handling consists partly in a two hours' trip on camel-back from packing-house to the sea—the camel being a quite jolty means of transit. It is then taken out to the steamer in a small boat in rough water and put into the hold of a steamer utterly without refrigeration for a three weeks' journey to Liverpool. All packing and handling is rough, and the firmness of the fruit is seen in its small loss by decay.

Cultural differences.—The first reason for difference in quality from the California fruit is possibly in type, as we may have a poorer type of Jaffa than they in Palestine. This does not, however, count for more than part of the difference. The next thing is that all the Jaffa oranges are grown by themselves. They are there practically a seedless variety, owing, it is thought, to absence of cross-pollination, seedlessness improving the quality. Here they are grown where the pollen can blow in from the more common varieties and develop quite a number of seeds. Another thing is the stock. They are grown on a sweet lime stock. A few have been tried on bitter orange stock, which results in a different and poorer quality of fruit. The climate where they are grown is like that of San Diego. Apparently, if they could be grown by themselves near San Diego on sweet lime stock, they would be much different from the ordinary California Jaffa.

The trees were planted seven feet apart until recently and were not pruned. The space has now widened to about 12 to 15 feet. Parasites take care of insect pests to a greater degree than here, there being red, black and purple scale to keep down. All cultural and marketing practices are backward.

Olives.—Mr. Aaronsohn is inclined to fear that California olive-growing is dangerous here owing to labor costs, as the Asiatic labor is much less expensive than labor here. They can grow olives for \$25 per ton there, owing to cheap labor, which is an intimation that, if the tariff was off, the methods improved in pickling, and the markets developed, California growers would have hard competition. As showing the possibilities of consumption, Mr. Aaronsohn stated that olives pickled according to Eastern methods were a

very common article of diet in Palestine.

As a hint to the planter, the custom of the Arabs might be followed in planting a fig tree or so here and there through the olive grove. This gives an opportunity for the scutalists to live through the winter and come out strong against the black scale on the olive, thus keeping it under control.

Carobs for Olives.—To take the place of the olives, Mr. Aaronsohn strongly suggested the planting of good varieties of carob trees, not as fruit, but for forage for our live stock. These grow finely in California and can be seen from Butte to San Diego. Those grown in this State are all seedlings of poor quality in comparison with what they ought to be.

Good carob trees on only average land in Palestine, with a rainfall like that of much of our interior valley, will often make about five tons of pods. These are one of the richest and most palatable forage foods that can be found. They contain about 40% sugar and fair amounts of protein. Being a legume, they are not hard on the soil.

The trees make fine avenue trees and should be given attention by every stockman. According to the above, they should run close the best claims for thornless cactus.

California Reciprocates.—California is pleased at these suggestions, and, to reciprocate, it is nice to be able to say that she has done lots for Palestine. Up to thirty years ago, agriculture was more backward in Palestine than it was at the beginning of our era. When modern agricultural development was started, the investigators had to begin at the bottom. A number of young men were sent to the European agricultural colleges for technical training, but it was found when they came to apply what they had learned, that humid agriculture could result in greater failures than utter inexperience. The search for accurate information that would apply to Palestine led to California, and California bulletins and publications are all sent for and studied. Mr. Aaronsohn volunteered the information in a private conversation that every copy of the PACIFIC RURAL PRESS was kept on file at the Experiment Station and was thought of very highly.

INFECTION OF THE VINE BY MILDEW IN THE SPRING.

[Written for the PACIFIC RURAL PRESS by
L. BONNET.]

Last year has been very favorable to the multiplication of the *Oidium* of the vine or "Powdery Mildew," on account of the cool and moist weather of some weeks of July and August. Vineyards which are ordinarily kept free from it in the San Joaquin Valley by too early applications of sulphur were this year badly infected with powdery mildew. There the first crop, which received the protection of the sulphur applications, arrived at maturity without much damage, but the second crop suffered heavily from mildew. In Sonoma County the disease was still more serious and sulphuring vines continued there even after grapes had begun to change color. In both places the foliage of the vine was badly affected, as well as the canes, and one may fear that next season will be again very dangerous for the crop because of the numerous winter spores ("perithecia") which have been produced by the fungus.

Can those small black sacs containing spores infect the vine next year? Plant pathologists attach a great importance to those perithecia and generally it is held by them that the fungus is able to survive from year to year. A few experiments to ascertain the possibility of infection of the vine by these winter spores were made this summer.

Perithecia gathered in the fall of 1911, in Berkeley, were placed in hanging drops at 17° and 27° C. Out of twenty-two perithecia under experiment at 17° C. only six cracked their envelopes, without throwing out the asci containing spores as they are supposed to do. One ascus, for instance, remained for nine days half-way out of one perithecia and without breaking.

Out of fifteen perithecia in hanging drops at 27° C. only two cracked their envelopes after nine days without throwing out the asci containing spores.

In these experiments a few perithecia were broken by handling and the spores in contact with water did not germinate.

On May 10th a Muscat vine growing in a pot was inoculated on both sides of the leaves with perithecia placed in drops of water in moist atmosphere. After twenty-six days there was no infection.

From these results it appears that perithecia or winter spores have very little chance to infect vines in the spring, since with such an amount of water as in these experiments the spores do not break open and that the ascospores accidentally thrown out do not germinate.

Can conidia or summer spores, which spread the disease during the growing season, infect the vine next year? It is generally admitted that they are not able to withstand the effects of the winter because of their fragile constitution and that mildew does not originate from them in the spring. Experiments on the germination of summer spores in hanging drops seem to corroborate this opinion.

Out of about 150 young conidia placed in hanging drops at 17° and 27° C., only six are supposed to have germinated and were probably but short conidiophores, as most of the conidia broke open without germinating. In this case their granulate protoplasm spread out of the broken conidia. As conidia have a short germinating power and that they cannot stand a prolonged contact with water, spring infection with last year's conidia is impossible, for they are destroyed during winter.

If this infection is not likely to originate from winter spores and is impossible by means of summer spores what part of the fungus causes it? The theory generally accepted is that infection of the vine is due to the mycelium of the fungus which remains alive in the browned tissues of spurs of pruned vines. Experiments are being carried out to test the value of this theory.

University of California, Berkeley.

Pruning Neglected Vines.

To the Editor: I have just become a subscriber to the RURAL PRESS and want some advice on pruning grape vines, through your columns. The varieties of wine grapes in my vineyard are, Mission, Carignane, Zinfandel, Petit Bouschet, and Sauvignon Vert. The vineyard has borne light crops for the past couple of years and the brush now in the vines is heavy and very long, also the pruning has been done by contract and the vines are of poor shape. Should I cut them back pretty heavily or should plenty of wood be left and the shaping of the vines extended over several years?—PARKER TALBOT, Santa Rosa.

Comments by Professor Bioletti.

To the Editor: I have read the communication of Parker Talbot regarding pruning, and it seems plain from his letter that somebody has been pruning all the fruit off his vines. When vines of any kind make an extraordinary large growth and bear unsatisfactory crops, the first thing to do is to prune them longer, that is, to leave more fruit buds at the pruning. This can be done in the case of Mission, Carignane, Zinfandel and Petit Bouschet simply by leaving a larger number of spurs. These spurs should be of two eyes when the canes are of moderate thickness, and three eyes when they are especially large. He should also be careful to see that these spurs are not made from water sprouts, that is to say, they should consist of the bases of canes growing out of two-year-old wood, i. e., the spurs of the previous year.

With the Sauvignon Vert, it will be necessary to leave two or more long fruit canes as well as the spurs. These fruit canes should be very carefully chosen from wood of medium size, growing out of two-year-old wood.

With regard to reshaping badly pruned vines, little can be done, if the vines are old. Gradually the vines can be made a little more symmetrical by cutting off an arm here and there where it is misplaced or too long.

University of California.

A View of the Lakeville Ranch of A. W. Foster.

[Written for the PACIFIC RURAL PRESS by
W. M. CARRUTHERS.]

The writer has often wondered why so few of the multitude who follow a chosen career, ever achieve success. One might count very easily the names of those who have added renown to the lines of live stock breeding in our State. This great problem commands consideration. Why should there result from all efforts so little of excellency and so much of mediocrity. Take, for instance, the breeding of pure-bred stock in which thousands engage with enthusiasm and high aspiration. It is the most difficult achievement that is ever more potent to spur us on to more strenuous endeavor. It is really discouraging at times to consider how really few first-class animals we manage to produce. How few great sires and dams have left their names to posterity; how few colts or calves in our State have come anywhere near the ideal of their kind!

One of the main reasons is that the breeder lacks that divine discontent which is the fore-bearer of all genius and the mainspring of all really excellent achievements. It seems we become satisfied with what we have or with something less than the very best of its kind at which stage we assume the limit of our progress has been reached and from then on we begin to retrogress.

Another reason which is harder to understand than the first mentioned is that we are unable to criticise the results of our own efforts. This defect in a breeder means failure from the very start.

To win success a breeder must use cool and well calculated judgement; be able to render merciless decision in the matter of the unfit and unsound and must be qualified to judge impartially his own animals with the eye of a stranger. More than all he must have the willing spirit of self-sacrifice and must be ready to pay well for the results that he is looking for.

Most of us lack that wonderful well-balanced mind that keeps an equilibrium and prevents us being drawn from the right course in the matter of breeding by either one wrong point of view or the other. Even though it is absolutely necessary to have an ideal to breed to, we must not sacrifice the essentials to the non-essentials in the pursuance of this ideal. This is the great danger of the present time.

In the breeding of cattle we have been sacrificing practical points for the matter of color, shape and all the effective touches that tally in the show ring until as a result we have two distinct classes of cattle, show animals and utility stock.

This article is being written to show that some of our large ranches which are being developed chiefly from the utility standpoint can be made successful where nothing but the very best of registered sires and studs are used to accomplish the work.

The writer recently spent two days with A. W. Foster on his great Lakeville ranch, comprising nearly twenty thousand acres, in Sonoma County. Nature has favored this ranch with a blanket of grass comprising English rye-grass, fillarce and other native grasses and which on account of the location, are green most of the year, reminding one very much of the great meadows of England and Southern France. While there the writer saw and had instilled into his mind many useful and practical ideas of the workings of live stock which might at some time be useful to some of our readers. Five separate branches of live-stock breeding are carried on successfully, namely, dairying, raising mutton, raising beef for the early market, raising draft horses to suit the requirements of the San Francisco drayman and lastly the maintaining of a registered Shorthorn herd.

Dairying.—Any one who has the least doubt that pure-bred Shorthorns are not of the dual purpose kind had better visit this dairy with

its hundred and forty pure-bred milking Shorthorns and see for himself these large beautiful animals with great udders converting the luxuriant grasses on this ranch into milk.

Mr. Foster is not thoroughly satisfied with these great cows and believes that the consumers of dairy products are fast learning the value of pure milk, cream and butter and the better they become acquainted with the value of quality in dairy products the more they can be induced to buy. This is a condition that every progressive dairyman should welcome. There is no satisfaction for a progressive man in producing a low grade article and getting a price to match it simply because the whole transaction can be easily accomplished. Every dairyman should go after the fancy trade. It does not matter how fastidious the customer may be, he should be able to furnish the goods, for it is in such that the greatest profit exists. It is also the belief of Mr. Foster that if every

to be a mistake. Mr. Foster has in his mind a plan for the building of sheep sheds which some day he may put into execution as he is a firm believer that warmth and a little shelter during the lambing season would swell his sheep profits. The flock comprises high-grade Shropshire ewes and nothing but registered Shropshire rams are used. Mutton is the main object although the shear from this flock is a very profitable item. In 1911 the lambs from this ranch sold for \$4.20 per head. In 1912 they sold for around \$4.00 per head. As the usual per cent of lambs from the flock is over one hundred per cent and as the ewe band is nearly six thousand in number, it will be easily seen that this branch of the industry is paying a handsome profit to its owner.

Beef for the Market.—Baby beef or as near to this as possible is the chief aim of this plant regarding its range activities. Five or six hundred cows of the very best type of beef Shorthorns graze these well grass-covered pastures. Nothing but registered Shorthorn bulls of the very best type have been used on this ranch. With such an array of matrons and high-class bulls, under good management, nothing but first-class results can be expected. Proof of this is shown when the steers from this



Group of Short-Horns and Their Fine Home on the Lakeville Ranch.

dairyman would make a special effort to improve the quality of his products so that when they appear on a customer's table, the latter will be satisfied with his purchase and the next decade would witness a forty per cent increase in the demand for milk and its products. Therefore it is the idea of the management of this dairy herd to continually pick the choicest cows for development to their utmost capacity as producers of milk products.

The comfort of the dairy cow is another of Mr. Foster's ideas of putting his dairy on a higher plane. He believes the cow will treat us just about as liberally as we treat her. He believes if she is allowed to lie on wet bedding, to breathe the foul air of a dark, ill-ventilated stable or stand with her hind feet continually buried in manure, she cannot give us a bountiful flow of milk that we may enjoy the comfortable living which we deny her. He, therefore, considers that the first great essential to cow comfort is lots of light and good ventilation in the stable. The next essential, a dry soft bed during the cold wet rainy season.

Sheep Raising.—Coyote proof fences are in evidence everywhere one drives over this great ranch, showing careful consideration for the protection of the sheep. Before the flock (that is now raising early mutton lambs for the San Francisco market) was selected and put on this ranch, the owner had a thought for their safety. Very little shedding is used at the sheep plant; everything is handled outdoors and where grass is so abundant as this ranch provides, to improve on nature's kindness would seem really

ranch are usually sold, one year before the usual time, that the majority of our ranches have their steers ready to turn off, weighing a little better than one thousand pounds. Upon inquiry the writer ascertained that the per cent of calves is far above the California average. Nothing less than ninety per cent is being raised annually there. One of the main reasons for this, is that the ranch has never been overstocked and on account of its particular location and immense productiveness, the range cows are never allowed to run down in condition, always looking thrifty and in first-class breeding condition. If our range men who are not so well favored with grass as this particular ranch is, would look ahead and prepare for such emergencies that our Southern range men are experiencing this year, the standard of our per cent of calves would be materially changed for the better.

Draft Horses for the San Francisco Market.—One will have to travel a good distance to find a better lot of draft mares than are maintained on Mr. Foster's Lakeville ranch. The mares are chiefly from a Percheron foundation crossed with a Shire horse. At present one of the very best Shire stallions in the State of California is owned on this ranch. Mr. Wheatley of Napa imported him from England especially for this ranch and that he is going to prove himself a great success is almost unnecessary to mention.

Nature certainly made a fine job in watering this ranch, as springs are to be found all over it. Man's assistance in piping these springs to

tanks for watering purposes has made this one of the best watered ranches the writer knows of. The mentioning of the watering system of this ranch has purposely been left until we came to the horse department. This thorough system of watering is one of the main reasons why the raising of horses on this place has been such a success. Horses require water frequently. Their stomachs are neither as large nor capacious as that of the cow, so it is absolutely necessary for the development of young horses to have plenty of water where they can have frequent access to it. To show that the management of this ranch has not lost faith in the horse as a department of live stock, the growth of which should be encouraged, they are now arranging to develop their colts more fully than heretofore. It will now be the practice in the horse department of this ranch to spend more time in the feed and care of the colt, up till he is a year old, for if neglected, during this period of his life, his weight in later years will be retarded. So in the future heavier and better developed horses will come from this ranch to supply the needs of our city draymen.

Registered Shorthorn Herd.—Some six or seven years ago Mr. Foster decided it would not only be cheaper, but the bulls would do better on the range, if they were raised at home. In laying the foundation for a pure-bred herd of Shorthorns his selections were made from the herd of Charles E. Ladd, Portland, Oregon, and from some of the good herds of Canada. Since the purchase of these cows the bulls raised from them have all been held for their own use on the range. None of the heifers have ever been sold. At the present time the herd has reached almost eighty head of registered cattle and more bulls are being raised than the ranch requires. Mr. Foster's intention is to go a little deeper into this work and produce registered Shorthorns to help supply the needs of our State and the Pacific Coast. The first herd bull used in this herd was "Toe the Mark," a son of the great "Topsman," who in the late nineties was the grand champion bull of Canada. In buying the matrons to mate with this bull some real well-bred ones were among them, particularly the great massive red cow "Julius Gem," a daughter of the Canadian bull "Rosecrucian," whose name will stand out as one of Canada's greatest sires. There are three or four really good cows among the band sired by the "Marquis of Lorne." This bull is well known to the writer as, in his yearling form, he was made junior champion all over the Northwest circuit the year he was shown. His dam was "Lorna Doon," one of the greatest cows ever owned in the Ladd herd. There are a few others bred in Canada which can stand right up along side "Julius Gem" in confirmation, quality and size. There are now many nice young cows in the herd from these early matrons, sired by "Toe the Mark." Quality and finish were "Toe the Mark's" outstanding features of which he has left in his progeny.

Three years ago "Tule King" was purchased for use on "Toe the Mark's" heifers. This young bull was shown on the Pacific Coast circuit the year he was a calf and was never defeated, winning first in his class at Sacramento, Salem and Portland. He has not developed into as large a bull as might have been expected but from his loin back he is nearly faultless and it is rarely that you find a herd bull with such quality. The young heifers from this bull were seen by the writer the other day and they are a very uniform, thick and of the lowdown type. It was for these heifers that the great young bull "Mnsie Master" was purchased recently and should everything develop nicely some real good calves ought to be obtained from this cross.

When we recall such men as Cruickshank and Bates, whose names are everywhere revered by lovers of cattle, we often wonder why men of our time do not more fully realize the beneficence of the great work of developing and perfecting domestic live stock.

To the owner of the Lakeville Ranch, A. W. Foster, will be due a debt of gratitude from the live stockmen of California for his work in setting an example of what can be accomplished in this industry.

A Word for the Berkshire Hog.

[Written for the PACIFIC RURAL PRESS by
W. M. CARRUTHERS.]

The Berkshire hog is perhaps the only one of the kind that has by American money and brains realized a higher standard of perfection in the pork world than the breeders of his native country gave him. He is well named the gentleman pig, because, look at him from every standpoint you may, there is a something which commends him to the eye of the spectator which usually creates an attraction at our county and state fairs. That the California men breeding Berkshires will make an eloquent display of this, their favorite breed, at the Pacific-International Exposition is without question, as the Berkshire at the present time seems to be the most popular hog of California, as evidenced by numbers in the State.

The Berkshire World, a paper published entirely in favor of the Berkshire, is doing a wonderful work in the field of development for this breed. The executive committee of the Berkshire Association are a lot of men who believe in promoting their cause to new fields of enterprise and they have been the first to respond to the Chief of the Live Stock Exposition in the way of special appropriations. They are ready to donate two thousand dollars for special prizes at the 1915 fair.

The Berkshire is, generally speaking, recognized by the large raisers of pork, to be to the hog world what the Hereford is to the beef world, a known rustler always hungry and ready for his meals, refusing nothing that is put in front of him and when nothing comes he is ready to go and hunt for it. When he is shipped in large droves to the markets a ready sale is generally found for him as he is a good killer and on account of his general makeup his weight is very deceiving to the most critical eye and a pleasant surprise to the seller is generally in store after the hog has been sold and crosses the scales.

Where stockmen propose grazing their hogs most of the time, the Berkshire has been found to be exceedingly profitable and when taken up for sixty days' feed to harden up the flesh, he responds to this kind of treatment very rapidly. Cross-bred hogs sired by a Berkshire have been found to be a great success and many stockmen rate his and the Poland-China cross hard to beat for feed lot purposes, but when it comes to selecting sows to put in the breeding herd from this combination such good results are seldom ever obtained.

The Berkshire was introduced into this country between 1833 and 1840 and from this breed was developed the Poland-China hog. Most of the hogs used in this country prior to this period were white, but with the Berkshire came the solid black hog with six white points. This probably is responsible to a considerable degree for the present fancy color of the Poland-China. To the Berkshire most credit is due for establishing the fact that line breeding in swine is much more superior to the development of a breeding herd than by cross-breeding. Line breeding consists in mating animals that are pure-bred and are of the same breed, which are bred along similar lines or of the same family. All experienced feeders and breeders of swine have long ago established the fact that this is the best form of breeding up the herd. It brings together animals that are similarly bred and consequently more or less similar in type.

One of the main factors in bringing the Berkshire hog up to a high standard of excellence which has now attained in this country was the method known as close breeding. It consisted in the mating of animals that were closely related but still not close enough to be considered in breeding. This method of breeding has been successfully practiced by a great many breeders. Mr. N. H. Gentry of Sedalia, Mo., and his father before him are recognized in the Berkshire world as the men who have made a thorough success in what is known as close breeding. Only men who have inherent love for the breeding of live-stock should try this way of breeding because it is only a few in a life time that can make a success. Mr. Gentry's main argument for the betterment of Berkshire breeding is the fact that "If animals

are properly selected so that they have no weak spots in common which may be transmitted and fixed in the offspring, it is a good practice, because it has a greater tendency to fix points either good or bad than by out crossing or line breeding." The writer has always contended in the breeding of high class pure-bred stock, that if animals are so mated that they have only good points in common, these points will naturally be more readily transmitted to, and more permanently fixed in the offspring.

THE AYRESHIRE QUEEN.

The writer has just received a letter from Gilbert McMillan, Quebec, Canada, stating that Jean Armour has now finished her year's record and claims the honor of being the first Ayrshire cow in the world to beat 20,000 pounds of milk in one year. Her record is 20,174 pounds of milk and 774.73 pounds of butter fat. This is over 2,000 pounds of milk in excess of the record of Netherhall Brownie Ninth, but does not quite equal the latter's record in butter fat. Brownie died soon after the completion of her test, while Jean Armour is in perfect health, and is now over three months gone in calf. Her best month was 1,200.7 pounds. Her highest yield for one single day was 73.6 pounds. Jean Armour was in her twelfth year when she finished her test and is a living refutation of the charge, so often made in the past, that Ontario Ayrshire breeders were neglecting the milking qualities of the breed and were simply breeding for the show ring. Jean Armour's pedigree is thickly strided with a long array of the greatest of Ontario show ring winners this province has seen during the past thirty years, and she stands today as the greatest living Ayrshire cow in the world.

W. M. C.

BREED BETTER BEEF BULLS.

The Idaho State Agricultural College seems to believe the proper way to demonstrate the good qualities of beef cattle is through the steer classes, or as John Latham terms it, "The court of last resort or grand final of all breeding, feeding and exhibiting." Last year this college made some purchases of high-class steers at the International show at Chicago. Word has now come that the first prize winner in the pure bred Hereford steer class, "Bronco," bred and shown by R. H. Hazlett of El Dorado, Kansas, was sold at public auction during the last International show. He was purchased by the Union Stock Yards Co. of Portland, Ore., for the sum of \$240. It is understood that this calf will be turned over to the Idaho Experiment Station at Moscow, Idaho, where he will be fed under the management of this institution for exhibition next fall at the leading Pacific Coast shows.

Some of the money still in the treasury at the California State Farm might well be used for purposes of this kind. It has often been said that California uses more beef bulls than all the other states combined west of the Rocky Mountains every year. It is, therefore, the duty of the management at the California State Farm to be up and doing something along this line to educate our breeders to breed more and better beef bulls.

—W. M. C.

CONCRETE FLOOR CONSTRUCTION.

In building a concrete floor of any size care has to be exercised to prevent the concrete from shrinking or settling and cracking. This is especially true in creameries where the use of warm water makes temperature changes on the floor abrupt.

To prevent such cracking have boards set on end in the concrete when it is being laid, dividing the floor up into large squares or rectangles. Then when the concrete has set enough to keep its shape, remove these boards and pour in asphaltum pitch. This will give when the concrete expands or contracts and prevent the latter from cracking.

What the Pacific Coast Apple Must Do.

California mountain apples are of the same type and excellence that characterize the apples of the upper coast states and as we are planting more apples at high elevations each year the "problem of the Northwest," as they call it, becomes our problem also.

At the Portland meeting of the Oregon State Horticultural Society last month, C. A. Malboeuf gave an exhortation to meet these problems from which we take the following forcible paragraphs:

COMPETITORS WITH THE APPLE.—I am not here to discuss what the future of the Eastern apples is going to be, however, as that is only incidental to the situation, for the reason that the apple in general is not any means the greatest competitor that our Northwest apples have. Strange as it may seem, the banana has that distinction. More than 120,000 ears of them will be eaten in the United States this year. Why? Because the banana is the most logical fruit to eat out of hand. It is the most convenient article of fruit we know of. It

is seen on the markets every day in the year; it is to be found in every market of the land from the single store down to the largest cities. It outsells the orange in cheapness, and can usually be depended upon to outsell our boxed apples at the prices we can afford to sell them for. If these qualifications of the banana were not recognized, it is very doubtful that it would have been made the most ideal staple article of green fruit we know of. It is true that this has been accomplished through a perfect system of merchandizing methods, but that system would not have been developed if the banana had not been possessed of those different conditions.

The orange is the next competitor of the apple. California, Florida and Arizona will produce something like 60,000 cars of them this year. Every food product, whether in its green or prepared state, is a competitor of the apple, as well as of other fruits, and we all know, who read, that fruit products, in their various forms, are increasing in quantity every year. That of itself means competition and nothing else. So when we try to console ourselves with the idea that our apples have a wide open field in the markets, and that there is no competition, we are looking through the wrong hole in the curtain. These are not alarming statements; they are mere facts. Intelligence always appreciates and recognizes the force of facts and gets busy. I think the more we introduce them at these meetings, and cut out rhetoric the better. So let us believe that we have lots of competition, but that we have the brains and the goods to meet it square.

THE APPLE MUST BE POPULARIZED.—One of the ways to meet this competition is to do what the other fellow is doing. We must make the Northwest apple a popular article in all markets. The moment any article gets to be universally popular the advertising value of that effect is tremendous. Funny papers and stage jokes would not center on the banana and the watermelon, if they were not both on the top floor of popularity. The first step to make the Northwest apple popular is to advertise it in the correct way, and that means in a broad, scientific manner, as well as in concentrated form. Thousands of dollars can be wasted in injudicious and independent advertising, and millions made through clear headed co-operative advertising. This is one of the most important things that the Northwest must take up. California found it necessary to advertise her oranges, and has gotten untold benefits out of it. They are spending this year not less than \$150,000 for that purpose. Florida will spend \$20,000. These are huge sums of money, but the levy against each box is so small that the individual grower does not notice it. The advertising policy of the California orange growers is one of the most effective and ably handled get-together schemes ever taken up in behalf of a perishable product industry. The Northwest won't hurt its pride a bit if it follows California's example.

WHY IS THE COAST APPLE ESTEEMED?—If we reflect for a minute we will realize that apple growing in the Northwest would never have reached its present magnitude if it were not for a single factor. That factor is distinctive quality. If we simply grew ordinary apples, there would be no industry here today in any modern sense; we would have kept up the old time methods of growing, and would not have had to discuss its perplexing problems, except perhaps to find a market for the moss. Now when we use the word "quality" as applied to our apples in the Northwest, we must do so very advisedly and understand exactly what we are talking about. The word "quality" in our case must be qualified to mean "superior

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quality," that is to say, the very best that we can raise. Then we must compound the term and call it "uniform superior quality." Granted that we can produce "superior quality," it is up to us to see that it is made and kept uniform. That is all there is to it. It is about uniformity that I have been privileged to speak at this meeting.

THE FREIGHT HANDICAP.—The first thing we want to discuss is why we are so particular about quality. It is not a very long story, and we will go into it briefly. To begin with there is the transportation handicap. The average distance we ship our apples to now is about 2,500 miles. I don't think that distance is likely to decrease as our production increases, because the more fruit we have, the greater effort we are going to make to try and fully develop the markets we are now using, and a great many more that are East as well as West of the 2,500 mile center. In other words, we must reach more people, and the more we get into the foreign markets, whether they are in Europe or anywhere else, the greater the average shipping distance is going to be. Now the further we go the more it costs. The cost today is often as high as a dollar a box. If we figure what it costs to transport the apple to the present average market, we will find that it is not less than fifty cents. It does not matter what price we get for our apples out here, or whether we have competition or not, we must not forget that the consumer has to pay fifty cents freight before he gets the apples.

BARRELS AND BOXES.—The average selling price of the Eastern apple is approximately \$1.50 a barrel at its shipping point, and there appears to be a profit at that figure,

or they wouldn't stay in the business. It costs us fifty cents a box to ship our apples to the average market, which is equal to \$1.50 a barrel, or what the Eastern barrel sells for at shipping point. Therefore, if we are able to produce a packed box of apples for fifty cents, that is only half the cost of laying it down in the Eastern markets, because the freight cost is fifty cents a box additional. In other words, in order to get merely the cost of production for our fruits in the average market, we must sell for at least twice what the barrel apples can sell for at a profit. The cost of production in the Northwest, therefore, must always be recognized as including the cost of transportation of fifty cents a box, in order to equalize the first selling price of the Eastern apple. All of this means that we have got to put not less than fifty cents worth of quality in our boxes to merely sell as well as the barrel does. Our profits will then be regulated by the extra measure of quality we put in. That seems perfectly clear.

QUALITY INDISPENSABLE.—This brings us down to how we are going to insure a uniform and dependable quality in our boxes. There are clearly two ways to do that. One is the adoption of a practical set of grading rules that will be recognized as a standard for the whole Northwest. The other is a rigidly correct, invariable and reliable application of them. The former is perhaps the most difficult of the two to bring about. It is true that uniform rules are in use between the members of the Exchange system in the Northwest, but as far as all districts and growers' unions are concerned, there has not been, up to this time, any co-operation movement or effect in a broad way, to bring about a definiteness of understanding and purpose.

The apple industry in the Northwest made its great strides in planted acreage and horticultural application because of the distinctive quality that we positively can, but do not always produce. That quality is based upon the maximum elements of the apple in physical construction as to type, size, style, smoothness, color, brilliancy and general attractiveness; freedom from disease, blemishes and defects, and included with this make-up, must not be lacking the maximum ability of the apple to stand up under shipping or storage commensurate with its natural habits.

GRADING.—That is, in short, what our so-called Extra Fancy grade is supposed to represent, and it should, of course, be made the basis for the lesser grades.

The principal questions to take up in connection with the subject of a fixed grade basis, are two in number:

1—What features must our apples possess in order to successfully compete against the product of other box apple sections, and the barrel apple?

The answer to this is perfectly obvious. They must include correct physical quality, color and size. If they lack in either respect, or at variance with trade demands or requirements, they are clearly unfit to compete against the great tonnage of the remainder of the country.

2—Can we uniformly grow apples of the distinctive quality, mentioned year after year? I think not. There are so many factors to consider in the way of climatic conditions, alone, that we may well come to a prompt realization of the fact that our apples are not, and cannot be expected to be, exactly uniform in character every year. In the average of seasons we might safely depend upon a certain relative combination of physical quality, color and size, by utilizing to the utmost of our knowledge of, and skill in, horticultural practices, but that is about as far as we can go. Granting this is the case, as events are clearly demonstrating to us each season, we must determine whether the local conditions as they vary, should be the governing factors in shaping our grading rules annually, or

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if we should not make the basis definite, and stand by them regardless of each season's conditions as they prove themselves.

In this final proposition, let us bear in mind once more that if we expect to get a correct price for our apples, they must be exactly as they are represented to be; that they must carry within themselves certain elements of physical quality, color and size, that the competing apples do not have; otherwise we need not expect to get any premium over them. Lastly, if we expect to establish our products in the market as a staple, we must put up a product so staple in its inside and outside makeup, that the trade will readily and automatically call for it in complete confidence in what to expect. That is where uniform quality shows its necessity, and how it can be effectively regulated by permanent and universal basis of grading rules.

THE ULTIMATE PURPOSE.—In dealing with this entire subject, we must have nothing but the welfare and the advancement of the industry in view. There is no occasion to "hide" the naked truth. We can raise apples, the quality and superiority of which are not to be questioned; to perpetuate that quality, and apply the principles of practical co-operation which have as much to do with the physical structure of the fruit and standardization of grades as any other factor, is to place the industry upon a basis that cannot be doubted as to its

profitable feature. It is self-evident that we cannot afford to raise fruit and sell it at approximately barrel prices in the markets. It is a sure thing that the moment we ignore the essential requirements of the trade, and offer them indifferent quality, lack color and size, we are becoming unconscious of danger and that is invariably an index to disintegration.

The greatest competition which the Northwest apple has, is the inferior fruit that we ourselves ship of indiscriminate varieties, grades and sizes of minus fair to poor quality. That is not the kind of fruit that is going to perpetuate our industry here. Not for a single moment. We must not ship fruit of varieties, grades or sizes that is not better than the product we are required to compete against. The more of that sort of thing we do, the quicker we are going to lose our reputation as producers of first-class stuff.

How Good Must the Apples Be?—The ideal reputation that we must make is one of confidence, on the part of the buyer. The amount he is willing to bank upon our reliability that box for box inspection before acceptance is unnecessary, then our reputation is made and it is strictly up to us to live up to it. Poor grades and pack that enforce examination under a microscope, are clearly the antidote to confidence on part of the trade. Now it is true that our inferior fruit might bring a slightly higher relative price than the barrel apple, because of the more convenient package that the box offers, or because of the delusive wrapper and the label, but in the final results we will find that if we do manage to get the cost of production, we will not get enough more to sell it at a profit.

We must, therefore, specialize in varieties as in everything else. We must forget the rank and file of ordinary varieties (especially the rank ones) that can be grown in any or every other section in the remainder of the country, and specialize on those that we have demonstrated our ability to grow to a state of superior advantage. Let each district specialize on the particular varieties that are best adapted to its local conditions, regardless of what the other sections of the Northwest are doing. Eliminate the other trees. Why we should continue to cultivate and care for these trees merely to act as detrimental factors to the better varieties.

A word or two about sizes. Once in a while we find that the country is hungry for small apples, but that is only when the crops are short in other sections. That seldom happens. When the trade don't want small apples, and we try to force them on the markets, what is the result? We simply put them into competition with the larger sizes, and shoot holes in the general values of our crops; the large ones pay the penalty for being connected with the small ones. When the general crops are large, the small apple from the Northwest is distinctively one of its element. The trade then don't want them; they want big apples. That is very positive. There is nothing else to it.

SMALL APPLES MUST NOT GO.—Knowing that to be the case, why do we raise so many small sizes? Will anyone here dispute the fact that small apples, I mean smaller than 150s, are actually and relatively getting more plentiful each year? Whether this can be remedied by greater care in cultivating, pruning and thinning, I am not here to say. We know, of course, that natural conditions are sometimes responsible, but as an average situation they are not. This is worth a great deal of thought. It is morally certain, however, that small sizes in a general way, are destructive to values, and in the progress of our industry, must be eliminated. A fixed grading rule is, perhaps, the best sorter of that fruit, if they are allowed to grow at all.

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California Leads in Beet Sugar.

[Written for the PACIFIC RURAL PRESS.]

The exceptional advantages of California for beet sugar production make it the greatest producing State in the Union, according to a bulletin of the United States Bureau of Plant Industry on the American Beet Sugar Industry in 1910 and 1911.

The bulletin says: California was the first State in which commercial success was assured by the establishment of satisfactory relations between technically equipped growers and manufacturers, although it was not the first State in which efforts were made to produce beet sugar. The factory at Alvarado is the oldest in the United States now in operation. During the 1911-1912 campaign, ten factories in the State were making sugar. Some of these factories are quite closely bunched; whether too closely for the good of the industry remains to be seen.

The exceptional soil and climatological conditions in California seem peculiarly adapted to the production of beets with a high sugar content. While their reported yield per acre is not so great as that of some other States, the sugar content is decidedly in excess of any other, so that with an acreage considerably less than that of Michigan, the total yield of sugar is much more. The calculated yield per acre for the past season was very nearly 3,310 pounds. Many of the California soils are very retentive of moisture, so that with an annual rainfall far below that of the central and eastern part of the country, beets can be grown successfully without irrigation. The little rain which they have is usually so nicely distributed through the early and middle seasons of growth as to leave almost ideal conditions for the period of ripening, with its accompanying storage of sugar in the cells. The ripening process is also materially assisted by the alternation of cool nights and warm days, a condition which seems best suited to the formation and storage of sugar in this plant.

Beets are reported as being grown in practically every one of the western counties from Alameda, which touches San Francisco Bay, south to San Diego, while Glenn, Butte, Solano, and Yolo counties are listed in the reports of the Sacramento River Valley.

A great deal of information on the position of the different States in beet sugar production is contained in the following table for the season of 1911-1912.

State	Factories.	Days Run.	Acres.	Tons Per Acre.	Value Per Ton.	Tons Worked.	Per Cent Sugar.
California	10	98.5	99,545	10.42	\$5.54	1,037,283	18.95
Colorado	14	63.3	86,437	11.07	5.55	957,142	15.44
Idaho	3	91	17,052	12.11	5.02	206,367	16.65
Michigan	17	122	145,837	9.90	5.74	1,443,856	14.59
Utah	5	96	33,950	13.03	4.81	442,310	15.98
Wisconsin	4	106	23,241	11.02	5.51	256,124	14.23
Other	12	83	67,815	10.61	5.48	719,251	15.16
Total or Average	66	94	473,877	10.17	5.50	5,062,333	15.89

SOMETHING FUNNY SOMEWHERE.—If a person will look into the above a little bit and use some brain work and arithmetic upon it, he will wonder if there is not something wrong somewhere. California produces far and away the best beets and yet gets less per ton for them than Colorado, while Michigan with almost the poorest beets in the lot gets an even 20 cents more per ton for them. Provided Utah and Idaho, which are strongly Mormon and the Mormon Church interested in the beet sugar business, were eliminated, California, with much the best quality beets, would get away below average price for them.

The price for one per cent (20 lbs.) of sugar in the California beets is 29.1 cents. In Colorado, with approximately the same price per ton, the sugar costs the manufacturer 35.3 cents. Throughout the country the average price is 34.6 cents.

On bringing it down to the amount of sugar actually recovered from the beets the California manufacturer pays the grower just about 1.78 cents a pound for the sugar, the Colorado manufacturer pays 2.13 cents and the average price is 2.28 cents. Somehow or other, although the California grower is away at the top in what he gets from the land, he is away at the bottom in what he gets from the manufacturer. Perhaps others can figure out something else from this report.

The average returns per acre in California seem to be about \$57.72 against \$55.93 as an average, and \$60.79 for Colorado as the luckiest producer. Perhaps because the California grower gets above the average per acre the manufacturer thinks he can afford to get away below the average for the sugar in the beets. Perhaps also the number of factories in operation affects prices, as Michigan, with rather poor beets, and lots of factories, seems to get the best treatment of any State named.

D. J. W.

YIELD OF GRADUS PEAS.

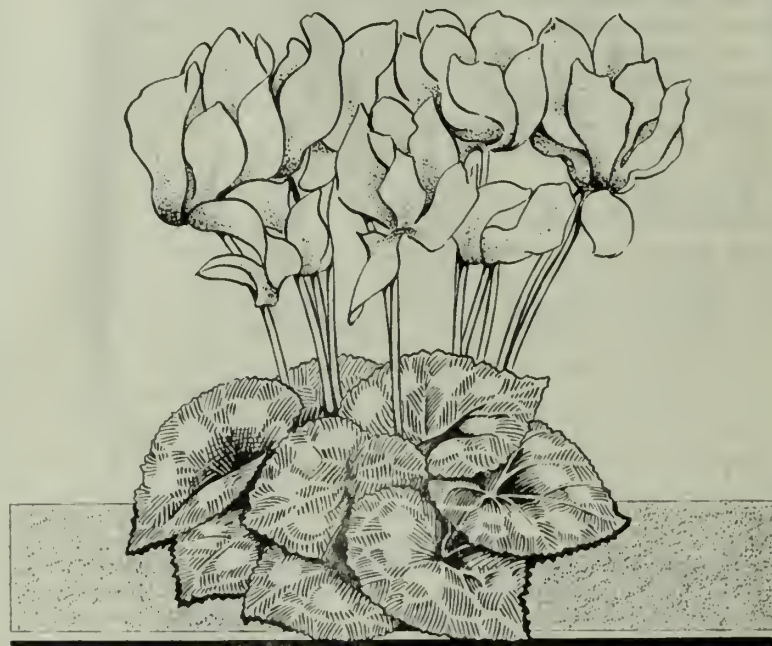
To the Editor: Could you let me know how many sacks per acre of Gradus Peas is considered a fair crop in California and how much is paid per sack to pickers?—SUBSCRIBER, Hammonton.

It is difficult to give accurate information as to what constitutes a fair or average yield for any crop as statements by producers are nearly always overestimates. It would still be more difficult to state the yield of a particular variety. All the

people around here who ought to know the yield of the Gradus seem to be out of the State. The yield of dry peas, however, seems to be about half a ton or 1,200 lbs. and you might calculate the yield in sacks of fresh peas from that. Estimates run from about a ton to 100 sacks per acre

with 125 to 150 sacks as the best yield. Picking is usually done by the day with three and four sacks a day's pick.—D. J. W.

The Santa Clara valley hatchery opened the first of the month. It has a capacity of 45,000 eggs.



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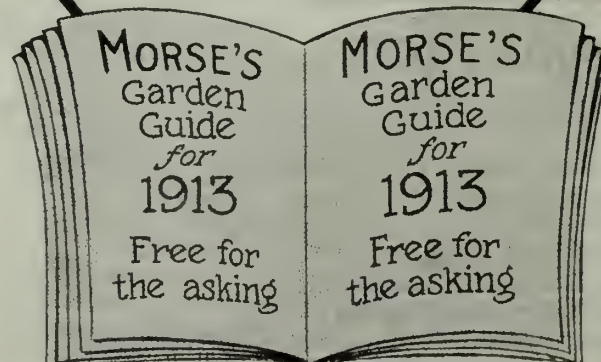
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Development for Solano.

[Written for the PACIFIC RURAL PRESS.]

For many years agricultural development in Solano County, except in a few districts, has been slow. In fact the deterioration of the grain lands through the county, through old-style grain farming, possibly about balanced increased productivity where better and intensive farming was practiced. Recently the utilization of the Suisun tules was started as was described in these columns not long ago and will do great things for southeastern Solano, and now the announcement is made of the development of 90,000 acres in a block in the eastern end of the county which will, with the Suisun development, make the gateway to the Sacramento Valley one of the most fertile and active regions of the State.

This 90,000 acres, approximately 140 square miles of land, has been purchased by a syndicate of California and Eastern Capitalists, among whom are Patrick Calhoun of the United Railroads of San Francisco, president of the company; Peter Cook of the State Reclamation Commission, M. H. de Young, George Cameron, president of the Santa Cruz Portland Cement Company, Thornwell Mullally, James Peterson and Colonel John C. Kirkpatrick. A. J. Rich and David Rich of New York are Eastern capitalists who started the plan. L. W. Symmes and Thomas Means, agricultural engineers, looked after the engineering features. The name of the company is the Solano Irrigated Farms Corporation.

LAND.—The land practically all is below the fifty-foot contour line, the highest point being west of the Southern Pacific Railroad near Elmira. The property touches both this town and Dixon. From there it extends over to the tule land north of Rio Vista, there being, however, only a

small area that will need reclamation by levees. The other will have to be irrigated.

The land is cut into on the east by Lindsey and Cache sloughs which are arms of the lower Sacramento River. On the south it is touched by Montezuma Slough, running into Suisun Bay. This gives water transportation from two sides. The Southern Pacific runs through the western end and the Oakland, Antioch and Eastern through the eastern half. The Vallejo and Northern will soon be built through the center.

Lindsey Slough is to be dredged out more and extended to join with the Oakland and Antioch at a point where the Vallejo and Northern will come together and a town built at that place.

IRRIGATION.—The entire area, practically speaking, will be irrigated. The water is to be secured from Lindsey Slough, which, being filled by the Sacramento River, always contains fresh water. At the same time it is tide water and there are no riparian rights to stand in the way of taking all the water needed.

The irrigation water will be pumped by electricity, two electric power lines running through the property. Natural reservoir sites will be utilized and the pumping done at times when there is the least demand of other places for electricity, so that special rates may be secured. One main canal will run along the twenty-five-foot contour, the other along the fifty-foot. Probably alfalfa will be the main crop grown.

DEVELOPMENT.—The work of obtaining the land and planning the work has been going on for two years and everything is ready to go ahead. Six caterpillar engines are already at work leveling the land for irrigation and as many more will be put on as will be needed to get the property ready for the water.

The canal will be dug by excavating machines especially built for that kind of work. These have already been ordered. The canals will be cement lined and will be in large part ready for the season of 1914.

Although the company has the name "Irrigated Farms," there is a strong probability that it will be but one "farm" for a long time at least. Nothing whatever will be put on the market until the whole area is fully developed and producing as it should. Whether any will be sold then or not depends upon circumstances. At all events it is planned to keep a block of 30,000 acres to be farmed under one management.

In early days this property was an important grain section. The method of grain farming there, as elsewhere in California, gradually impoverished the land until recently the greater part of it was used more for sheep pasture than anything else. Although most of it is rather low only a small portion is subject to overflow by the back waters of the Sacramento River.

In place of being a sheep range good cultivation and irrigation will make it one of the most fertile spots in the State, and newcomers entering the Sacramento Valley from the San Francisco Bay region will be impressed by the fertility and productivity of the country instead of seeing large areas of fertile land apparently lying idle.

D. J. W.

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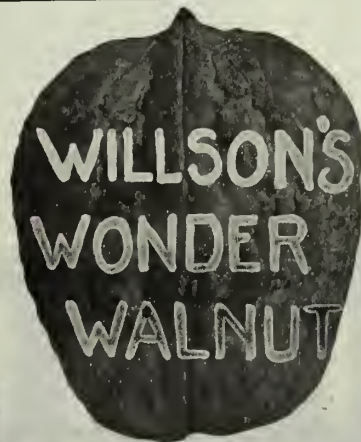
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J. L. AMES, Live Oak, Cal.

AGRICULTURAL REVIEW.

Tulare Citrus Shipments.

The citrus crop of Tulare county during the past season amounted to 1850 cars, only about 60% of a normal crop. Owing to the fact that the crop was short, the trees setting very little fruit, what fruit there was made a very large growth and was oversized, so that prices were below normal. Lindsay shipped the greatest amount of fruit, having thirteen packing-houses going at once for a short time and sending out about 1,000 cars. Porterville was second, Exeter third, and Lemon Cove fourth. Most of the fruit was shipped before December 20, a few cars going after that time, the last one after the new year. The cold snap has not affected land values there unfavorably, but rather the other way. The 40-acre Wingard grove, three miles east of Lindsay, was offered to J. M. Wright of New York for \$35,000 a short time ago and turned down. Then the freeze came along and the price went up to \$40,000 and was accepted. The trees are all less than six years old, three acres are unplanted and three acres are in young olive trees. From all accounts, the freeze has done very little damage to trees in either the Sacramento or the San Joaquin valley, while the navels were all gone and therefore not subject to injury.

Raising Moving Well.

The raisin crop is said to be moving quite rapidly, as out of an estimated crop for 1912 of \$0,000 tons, about 60,000 tons have already gone East. The remainder ought to be practically cleaned up by the time the crop of 1913 is ready. In the Fresno Republican, J. B. Inderrieden of Chicago is quoted as favoring the California Associated Raisin Co. as a method of stabilizing prices and benefiting thereby both producer and consumer. There has been some call for stock in the Associated from capitalists recently, but such will not be sold for a little time yet. The directors of the company held a meeting Wednesday to see what steps could be taken to dispose of the remainder of the 1912 crop.

Freeze Hits Potatoes.

An exceptional occurrence was the freezing of a great tonnage of potatoes during our recent cold snap. The frost penetrated some depth into the soil and in a few cases even some potatoes in warehouses and cars were frozen, though the damage from this cause was small. Owing to the surplus in the market, there was a large proportion of the potatoes left in the ground in the delta region, and nearly all of those close to the surface are said to have been spoiled. However, it is doubtful if the curtailment in supply will materially affect prices, and, if it does, the benefit to the

grower from better prices may about offset the injury to that part of the crop frozen.

Grange Wants Laws Enforced.

The Napa Grange has endorsed the program of the Commonwealth Club of San Francisco in calling for a reformed legal procedure. The proposed changes include improvements in the method of selecting juries, in the number of jurors required for a verdict, the weight to be given the evidence of accomplices, and in the instructions given to juries. The Grange also wants grand juries to be empowered to initiate legislation, to order a recall election against incompetent or unworthy officials, and that they be empowered to initiate action for the summary removal from office of officials guilty of certain offenses. The Grange calls upon all other Granges to pass similar resolutions and see that these reforms are accomplished in the present legislature.

Dairymen Oppose Meddling.

The dairymen of Marin county are up in arms over a proposed bill by some Los Angeles people which would make successful dairying almost impossible, and have requested their representatives in the legislature to see that such bills are defeated. If dairymen in every county would do likewise, the laws suggested by the State Dairy Association would go through with flying colors, and no others. The joint committee of the Creamery Operators' Association and the State Dairy Association met early this week in San Francisco and practically completed the bill regulating the dairy industry of the State which they will present to the legislature. It is a bill that is worth while.

Would Pro-Rate Shipments.

To devise means for getting the best possible returns for citrus fruits, a meeting of citrus growers and shippers from all southern districts has been held. Efforts are being made to secure emergency rates from the railroads so that fruit can be hurried East in time to be consumed before the quality suffers materially. A 50-cent rate is asked for until February 28, which will probably be granted by the railroads upon the understanding that the rate be not used against them in asking for any permanent reduction. By common consent it was agreed to devise means for pro-rating the shipments among the different districts that were hurt by the frost, so that each district could get its share of the market, although not shipping enough fruit to demoralize the market, which might occur if every district tried to rush all fruit off at one time. The matter is in the hands of a special committee headed by C. C. Chap-

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First-class trees in heavy surplus.

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man, president of the Citrus Protective League. It is probable that about 125 cars per day will be shipped. Districts not injured, or but little injured by the frost, may agree to ship no fruit during this time in order to give every advantage to districts where the fruit was frozen.

Northern Citrus Progress.

In Yuba county 15,000 acres of land near Honcut have been acquired by a recently incorporated company. The land is crossed by the Western and Southern Pacific railroads. It will be developed and provided with irrigation facilities and subdivided. The promoters are nearly all in business in either the Sacramento or the San Joaquin valley.

In the foothills of Sacramento county a company composed of bay city men has secured 1,280 acres in the Carmichael colony. This also will be developed and sold for citrus, olive and other fruit culture. From down the Tulare county citrus district, other word comes of land sales, one of the largest being a section of land near Terra Bella. The James Mills Citrus Orchard Co., of the Sacramento valley, is planning to double its planting next year, if stock can be secured. With the other developments we have noted, it seems that they will have lots of company.

The Natomas Consolidated, which is going to set out 30,000 acres and more to olives and oranges in eastern Sacramento county, will have its own nursery. The site of this has been selected by E. K. Carnes, horticulturist of the company, near Nimbus, on the Folsom road. It will be in charge of P. B. Estrada.

Growers' Association Active.

The Sebastopol Apple Growers' Union has finished up its business for the season and the final checks for the crop of 1912 have been mailed to the members. Owing to the big crops all over, prices were much below average, but the union came out in good shape and is stronger than ever.

The Santa Clara County Association is becoming possessed with the spirit of co-operative marketing and held a meeting this Friday to discuss methods of organizing a producers' marketing house in San Francisco, to see if the middleman's

(Continued on Page 90.)



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HARTLETT PEARS, APPLES, CHERRIES, ALMONDS, PEACHES.
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The new plum Vacaville, first blue plum to ripen, large, fine flavor and shipper. Imperial Prune (Felix Jellet strain), heavy annual bearer, 20-30 to pound. Robe de Sargent; large plums. The new blue plum President, large, late, very fine.

For prices write H. A. BASSFORD, Latis Rancho, Vacaville, Cal.

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There is no need of asking which is the more profitable.

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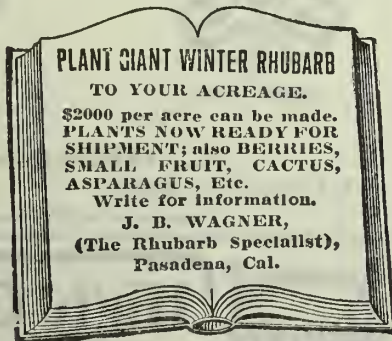
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Dates and Their Homes.

Paul B. Popenoe of the West India Gardens, Altadena, who is now in the Persian Gulf country studying the varieties of dates there with a view to bringing back a large shipment of offshoots for growers in Southern California and Arizona next spring, writes to the Western Empire as follows:

"I have just completed a month's tour of Northwestern India, where the cultivation of the date palm is rapidly assuming importance, and have gathered a great deal of information that will be of value to Southern California growers, since climatic conditions in the Sind Desert, the best date growing district here, are almost identical with those in the Coachella Valley, the largest date growing district in California, and declared by Dr. W. T. Swingle of the United States Department of Agriculture to be the finest country in the world for growing dates.

"A good deal of experimenting has been done with seedling dates in times past here, but the government experts say the variation among them is too great to make that

method of propagation desirable from a commercial point of view. It was reported at the Lucknow Gardens, for instance, where there were 272 seeding date palms twelve or thirteen years old, that there were scarcely two alike. Seedling dates are also said to be short-lived their root systems being too much on the surface.

"Offshoots imported from the head of the Persian Gulf, or taken from palms now growing here, which were formerly imported in that way, are the reliance of the growers of India, and it has been found, by repeated experiments, that there is slight danger of losing any offshoots in shipment, the only danger being in neglecting them after they have been set out.

"The two varieties most highly prized at Basra, and also in India, are the Halawi and Khadravi, both of which have been tested out in the United States and found highly desirable. The British Consul at Basra, in an official report, states that Khadravi bears earlier than any other offshoot, beginning to yield a profitable crop at the age of three years, if given good soil and plenty of water. Halawi usually comes on a year later. The latter variety is the principal one exported to the United States from Basra, millions of pounds being shipped to New York every fall and sold usually under the trade name of 'Golden Dates'—a name that also includes a good many of Khadravi and other varieties.

"A crude sort of artificial ripening is practiced here, the dates being boiled in water just before they are ripe, and then dried in the sun, when they become quite hard and will pack and ship as easily as our ordinary dry dates. They retain a good deal of astringency, however. These Persian Gulf varieties in general ripen earlier than those of Algeria, which have formed the bulk of our importations of offshoots in past years. With our scientific methods of artificial ripening, which allow us to take dates from the palm a week or ten days before they naturally mature, we not only save a great waste through fermentation and insects, but can get them in the market that much sooner and thereby get the high prices which always are commanded by early fruit.

"Persian Gulf dates ripening from August on, and our Algerian varieties continuing until November, the season for fresh dates will be long enough to suit the growers and consumers, who are certain to buy fresh dates in immense quantities, as soon as they find how delicious they are.

"The average yield of bearing palms in the government botanic garden at Saharanpur is stated by the superintendent to be 160 pounds per year, and it is reported that the variety Zahidi of Bagdad regularly bears 300 pounds per year. In California, we can make handsome profits if we get only 100 pounds per year. We are so far ahead of the Indians and Arabs in the application of science to horticulture that I am convinced California is going to produce the finest dates in the world."

SALTPETER AND OIL KILL STUMPS.

In our issue of December 14th, we requested subscribers who had used saltpeter on stumps to tell the results they had secured and have to thank Nathan Graham, Upper Lake, Lake County, for the following:

To the Editor: Replying to your request of December 14th, will say that some years ago I wished to remove some big oak stumps and bored two holes in each stump, put in three ounces of saltpeter to each hole, filled them with kerosene oil and plugged the holes up. I then let them stand four months and they burned to a finish.

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There is an iron well in the tank which makes the tank easy to clean and drain. The patented cut-off and air suction in the tank makes it unnecessary to put out the suction hose. Every detail of the Bean Giant has been worked out to its greatest perfection. You ought to know more about it.

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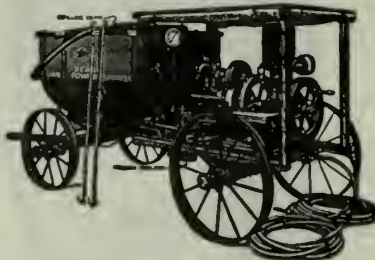
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Plant Almonds or Walnuts. Safe investment. We have the best varieties. They thrive in many soils. Please call, or write to us at

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Dollar Strawberry Plants, \$5.00 per M.
Harbark's Patagonia Strawberry Plants, \$2.00 per 100.

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All budded from Pedigreed trees as to quality and quantity. Guaranteed free of scale.

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(Established 1895)

San Fernando, Cal.

Home Improvement, No. 8.

The Inside of the House.

[Written for the PACIFIC RURAL PRESS by
O. P. SHELLEY.]

One of the most prominent facts which the investigation of the "Country Life Commission" developed, was the lack of entertainment and the unattractiveness of life on the farm especially for the younger generation. The constant flocking of boys and girls to the large centers of population, is only too often found to be due, not so much to the lure of the great city, but to the harsh, dingy surroundings of the typical rural home. Let us take heed to this warning and with the constant cry of the leading economists and statesmen of "back to the

ture mould usually being tinted or papered in pleasing contrast to the tone used for the ceiling work.

For most rural homes it is impossible to use plaster owing to the difficulty and excessive cost of obtaining plasterers. The method commonly used is to sheath the interior of the house with wood and either paint or paper over it. This method is extremely unsatisfactory—the rooms are not sound proof to a distressing degree and in addition, heat and cold readily pass through, making the house lack comfort at all times of the year.

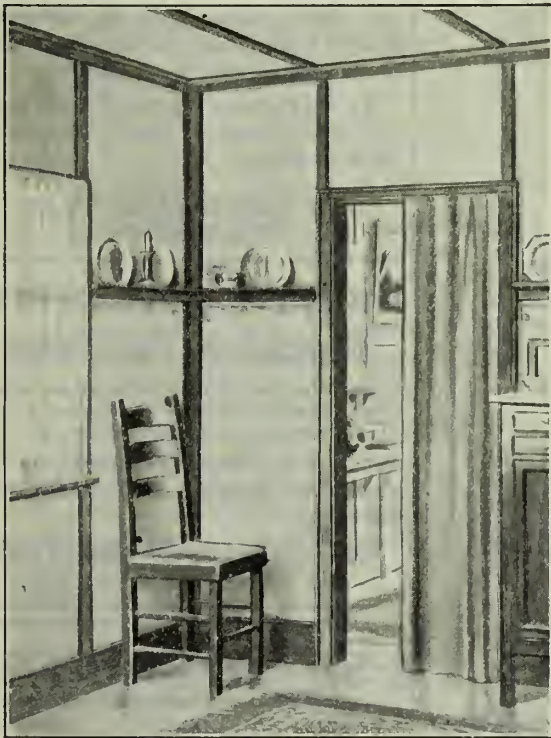
WALL BOARDS.—Of late, however, the problem has been satisfactorily solved

easily cut with a saw to fit any odd places where the full size sheets do not fit; any one can nail them to the supports. As to the tinting, the boards are merely given one coat of varnish, and are then coated with washable wall tint or else paint, enamel or anything desired, and an extremely pleasing combination of colors can be arranged and this tinting can easily be done by the members of the household. As for the battens, where panelled effects are used, these can be obtained from any planing mill, and are usually made of clear Oregon pine, 1 1/2 inch by 2 inches, dressed down, or on all four sides. It is very simple to stain or paint these battens before they are tacked on the wall and there are no complicated edges to be painted or stained, and there is no danger of smudging up the tinting already done on the wall-board.

REMODELING.—You must realize that not only can these boards be satisfactorily

tinted or papered, cannot be emphasized too strongly, as it means that the men of the household, in either their spare moments or more likely between seasons when the farm work is not pressing, can do all the work themselves, and the labor will therefore cost nothing, while the cost of the wall-board and the paint or wall-paper is very small, and not to be compared with the increased comfort and attractiveness in the home which will result from it. Moreover, it is very easy to purchase the material and install it in one room at a time and thereby distribute the cost in such a way that it will be felt very little. Also, nothing is risked in trying merely one room and results will be so surprising that the entire house will be immediately remodeled with the wall-board material.

ARTISTIC RESULTS.—When the subject of improving the house in this manner is taken up, too much thought cannot be given to doing it in an artistic manner



Room Finished With Wall Boards.



Wall Board Construction Illustrated.



Paneling Wall Boards With Battens.

farm" in our ears, let us try to make the farm more attractive—a home and all it implies and not merely a bunk-house, or a place to live.

Outside there are so many easy improvements to make, as for instance, a tennis court, a liberal garden, including some restful green lawns, neatly gravelled paths in the garden and around the house; neat outbuildings situated some distance from the house etc. It is on the interior of the house, however, that the real homemaking can be done, for it is inside the house that the women of the household spend practically all their time, and the men and children spend at least half their lifetime in the home.

WARMTH AND COMFORT.—As a matter of fact it is extremely hard to make a rural house even comfortable at all times of the year, owing to the extremes of heat and cold, varying not only with the seasons, but between day and night. Rural houses are of necessity built of wooden construction—suitably painted, this is satisfactory enough for the exterior, but the interior is a very difficult problem.

Plaster has always been considered a standard way of finishing walls for high-class work, whether offices or residence buildings. However, the old smooth white finish is no longer considered the proper thing; the walls, even when plastered, are nowadays always tinted or papered over. The walls below the pic-

by the introduction of wall-boards (or plaster boards, as they are sometimes called.) These are shipped to the consumers in bundles and are merely nailed to the studding or sheathing, and can then be either tinted or papered over.

The idea, however, should not be held that these plaster boards are in any way a poor substitute for lath and plaster, or that they are only used in temporary work. As a matter of fact, the practice of using plaster boards even over metal studs in the highest type of office buildings, and plastering over the plaster boards, is coming very largely into vogue. In residence work, however, the extreme stiffness and sound proof qualities, required in a fireproof office building, are not necessary and the plaster boards are an absolute success when used direct, without the additional coat of plaster.

PANEL EFFECT.—In the case of tinting, the joints between the various sheets are usually battened, forming a panelled effect which is extremely attractive, as you will note from the various views shown. There is nothing at all difficult about this procedure; the boards are

used in new construction, but it is possible to nail them over dingy wall-paper, old sheathing; in fact to remodel your house, and as there is absolutely no dirt or litter, this can be done even while the family is occupying that particular room. It is also possible to finish off rooms in basement, attic or on the main floor which have not been finished off at the time the house was built, and turn those into bright, attractive rooms.

Another use to which these boards can be put, would be the finishing off rooms in the tank house or upper stories of barns, which are so often used for the hired men, making the quarters attractive, and making it much easier to keep the men, for nothing pleases and holds working men so readily, as bright attractive quarters, which are neither too hot nor too cold for comfort. The wall-boards or plaster boards mentioned are extremely good insulators against heat or cold; will not crack under vibration or shock and are amply stiff enough over the average spaced studding to withstand daily use.

The ease with which the wall-boards mentioned can be put up and either

and care should be taken to obtain from the manufacturers the various sizes in which these boards are manufactured; not only with a view towards saving of waste, but towards obtaining a panel effect which may be artistic. Of course, where the boards are papered over, this is of no vital consideration except as to saving of waste.

Also, attention should be paid towards getting a variation of color schemes through the house, the bathroom and kitchen may be painted or enameled white for the sake of cleanliness, while the bedrooms look very well with cream colored walls or ceilings, light blue, or other light, airy colors. In bedrooms, light tinted walls and ceilings with white enameled wood-work is pleasing, indeed.

For the living room, parlor or other main rooms, more substantial colors may be used; however, it is always pleasing where tinting is done, to keep the walls a different shade from the ceiling, being careful to use colors which harmonize, in fact, where the rooms are papered it is usually a big improvement to use different paper on the walls and ceilings, running a batten around the room as a picture mould and starting the different papers at this line. The effect of picture mould will also be to take off the monotony from the walls and liven up the appearance of the room considerably, as well as giving something to hang pictures, etc., from.

SWINE.

SWINELAND DUROC-JERSEY TAMWORTH and BERKSHIRE SWINE Boars, all ages, for immediate delivery. All stock fully guaranteed and registered. Money back if you are not fully satisfied. SWINELAND, Box 161, Yuba City, Cal.

POLAND-CHINA HOGS—SPECIAL BARGAIN PRICES on account of the large number I raised this year. Profitable, easy feeding, early maturing healthy hogs from the best Eastern strains. All ages, both sexes. Registration papers furnished. Geo. A. Smith, Corcoran, Cal.

WANTED—A number of Grade Berkshire sows, bred to farrow in February; must be not less than 12 months old at date of farrowing. Address Reynolds & Smith, Delavan, Cal.

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FOR SALE—Fine Holstein cattle and Berkshire boars; all subject to registry. Geo. C. Roeding, Fresno, Cal.

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JOHN LYNCH, breeder of Registered Short-horns, milk strain. High class stock. First-class dairy breeding. Smooth cattle. Best pedigree. P. O. Box 321, Petaluma, Cal.

BEGIN 1913 by buying pure-bred Jersey sire. Bull calves, \$25, \$50, \$75 and \$100. Service bulls \$100 and up. Prize-winning and producing stock. N. H. Loeke Co., Lockeford, Cal.

T. B. PURVINE offers for sale a few nice registered young Jersey bulls and bull calves out of fine cows. Petaluma, Cal. R. F. D. 4, Box 195.

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MINOR & THORNTON, Breeders of Reg. Holstein-Friesian cattle. Kearney Park P. O., Cal.

REGISTERED JERSEY CATTLE—Young stock for sale. W. J. Hackett, Breeder, Ceres, Cal.

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SHORT-HORNS AND BERKSHIRES—Practical excellence and show qualities. Bookwood Farm, Ames, Iowa. C. F. Curtis, Prop.

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PURE-BRED REGISTERED PERCHERONS AND BELGIANS. A few choice young stallions from three to five years old, also two and three year old fillies for sale. Los Altos Stock Farm, Los Altos, Cal.

PURE-BRED JACKS AND JENNETS for sale. All stock guaranteed as represented. Prices reasonable. J. E. Dickinson, Fresno.

BIG BONED BREEDING JACKS for sale. Jas. W. McCord, Hanford.

RUBY & BOWERS, Davis, Cal.—Registered draft stallions, all breeds.

SHEEP.

CHAS. KIMBLE, Breeder and Importer of Rambouillet. Hanford, Cal.

SIZE OF A SILO.

To the Editor: I am planning on building a silo eight feet high and ten feet across, and before building, I am taking the precaution to ask your advice. Will ensilage (corn, oats) keep well in a silo of those dimensions, and would you advise building one that small? Can you give me an estimate of how much it will hold?—A. L. H., Los Molinos.

The silo you are intending to build is of very poor proportions, as it is too shallow, and would hold only a very small amount of silage. There would be several inches loss of silage before you could start feeding, and you would have to feed at least two and probably three inches off per day in order to keep the food from spoiling. Sixty inches of silage would thus only last about twenty days. Also the deeper a silo is, the tighter the ensilage is packed and the more will be contained in a cubic foot.

We could give you a better idea of the size to build if we knew the number of cattle you had to feed. The following table will give suggestions as to dimensions:

Diameter.	Height.	Capacity.
10 feet.	25 feet.	36 tons.
10 "	28 "	42 "
11 "	29 "	60 "
12 "	32 "	73 "
13 "	33 "	83 "
14 "	34 "	115 "
15 "	34 "	131 "
16 "	35 "	158 "
20 "	35 "	258 "

A cow can consume four tons of silage in 180 days and more or less as you care to feed, so by figuring out how long you will probably feed, you can see the size of silo to build at once. Occasionally cheap, shallow silos are put up, but if a person owns his land and wants something that will last he will find it more profitable to put up a silo of something like the above dimensions. You can put the base of the silo eight feet into the ground if you so desire. There is nothing in the way of expense that ought to prevent a person from putting up a good silo.—D. J. W.

BIG GRADE HOLSTEIN RECORD.

To the Editor: A few months ago I purchased a cow at a public sale, paying \$127.50 for same. My neighbors said I was easy. She is of the perfect Holstein type, said to be pure bred, but not registered so far as I know. She has been fresh two months now, and so far her record is 2088 lbs. of milk for the first thirty days, and 2210 lbs. this past thirty days. She tests 4.10 and 3.80 in two separate tests. Her feed has been alfalfa pasture (frost bitten) and good alfalfa hay; nothing else. I am new in the dairy business and just beginning to build up what I desire to be a model herd, and expect to annex a registered bull in the coming spring.

Will you kindly tell me how this cow ranks as a desirable dairy animal? She is six years old.—SUBSCRIBER, Stevenson.

If you were "easy" in paying \$127.50

THE Woodland Hackney Stud

Saddle Horses
Combination Horses
Matched Teams

Our own Breeding and Training.

833 36th Ave. or 818 Merchants' Exchange, San Francisco, Cal.



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BERKSHIRES

Our herd is now one of the best in the State, being rich in Silvertip, Black Robinhood, Longfellow, Empress and Masterpiece Strains.

Prices reasonable, satisfaction sure. Correspondence solicited from interested parties.

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Cutter's Anthrax and Blackleg Vaccines

are given the preference by 80 per cent of California stockmen because they give better results than others do.

Write for Prices, Testimonials and our New Booklet on Anthrax and Blackleg.

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For 1912:

140 Head Yearling Rams
150 Head Ram Lambs

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3 past Yearlings from Tested Dams.

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KENTLAND, INDIANA, FEBRUARY 26, 1913.

25 Bulls. Rare Breeding and Quality.

50 Cows and Heifers. Show Yard Quality.

Now is the time to begin to prepare for the great Panama Exposition.

20 of the bulls are Sons or Grandsons of the Great Perfection Fairfax.

All cows of breeding age bred to my celebrated Herd Bulls. Send for catalogue. Mention this paper. If you can't come, send your orders to Sec'y. R. J. Kinzer, John Letham, or the undersigned, and you can rest assured you will receive a square deal. I would indeed be pleased to hear from anyone interested.

WARREN T. McCRAE, Prop. Orchard Lake Stock Farm.

JAMES HENDRY, Mgr.

WORLD'S RECORD HOLSTEINS



Riverside Sadie De Kol Burke

Aralla De Kol, one year.....28,065.9 lbs. milk
Sadie De Kol Burke, six months.18,285.8 lbs. milk

Place at the head of your herd a bull strong in the blood of these cows.

We invite you to inspect our herd and will cheerfully give you further information and prices.

A. W. MORRIS & SONS,
Woodland, Cal.

ANNUAL SALE OF SHORT-HORNS

WHITE & SMITH

ST. CLOUD, MINNESOTA

AT CHICAGO, FEBRUARY 12th, 1913

This is one of the very best lot of Scotch cattle that has been sold in recent years. The chief attraction will be "ROAN QUEEN", grand champion female at the last International. She will be right up to the calving to the service of "Ring Master". Grand young cows in calf and with calves at foot by "Ring Master" are in the sale. A great array of "Ring Master" yearling heifers will be another of the special attractions. The great herd bull "Superbus" with some of his get and along with four "Ring Master" bull calves will make up the bull offering. Forty-two females and nine bulls will make up the sale, the whole lot of the most fashionable and best of Scotch breeding. This is a rare opportunity for the Short-horn men of the West. Any of our breeders who are in need of such cattle and cannot attend the sale should either wire or write W. M. CARRUTHERS, c/o Sherman House, Chicago, who will carefully take care of such bids, or Geo. P. Bellows, Marysville, Mo. Catalogues will be on hand at the office of the Pacific Rural Press.

For a cow like that, the man would be in hard luck that made a trade with you when you were onto your job. In other words, if you have as much success with fancy stock as you have had with this cow, you should make a fine record. It would be worth while to trace that cow back, and if she has ever been registered, see that she is registered in your name. She would then be worth several times what she is as a grade.

Some Holstein-Friesian records have just come to hand, those registered from November 10 to December 7, 1912. In this ninety-seven full aged cows averaged for their best week 461.2 lbs. milk and 16.263 lbs. fat; test 3.53. The greater part of these were very probably given special care for the test. The average time at which the tests started was eighteen days after calving.

Your cow during the best month gave enough milk to make at a test of 3.95, which is her average, 87.3 lbs. fat, or 2.91 lbs. of fat a day. Her best weekly record is very probably is quite a little above this. Her average seven-day record would be 20.67 lbs. of fat, equal to 25.8 pounds of 80 per cent butter. Of the 97 full aged cows referred to, only six did better than that. Your cow for her best week would probably do much better than any of these cows under forced draft, though possibly not as much as record cows.

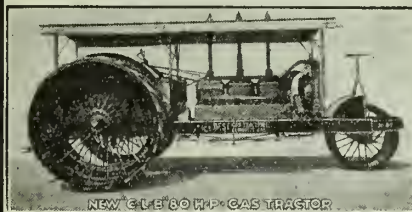
We should say that if this cow was kept milking for full 365 days and given the best of care, as are the cows making the year records, that she would make about 800 or 900 pounds of fat, and under ordinary conditions, about 550 or 600 pounds. It is very doubtful if the average grade cow on the best grade dairies, not the average dairy, would make more than 240 pounds. You can figure out how much more valuable your animal is than the average good cow from fat and skim milk standpoint, to say nothing of the value of the calf.

We will be glad to hear just what she produces this lactation period.—D. J. W.

It is not often that a Short-horn steer wins the championship at the great Smithfield show held annually at London, England, during the Christmas season. This is what happened this year, demonstrating that the red, white and roan still stands in the same class as the Hereford and the Angus in the fat-stock world. At the International this year a Short-horn steer came within one point of winning the championship at the recent International held at Chicago. This ought to be good news to the breeders of Short-horn cattle and an inspiration to them to move forward to gain greater achievements.

Stanford University Farming.

The trustees of Stanford University have prepared plans for the intensive development of 18,000 acres of fine valley and lying between Durham and Nelson in Butte county. Contracts have been let for the construction of a number of buildings, to cost \$15,000. This land was used only for range purposes and will now be set out to fruits and grain.



THE NEW C. L. B. GAS TRACTORS

with high and wide wheels, will plow, harrow, seed or harvest when your ground is in proper condition. Mushing a crop in is against proven methods of today. THE NEW C. L. B. PERFECTED, ALL-STEEL GAS TRACTOR IS BACKED BY A YEAR'S GUARANTEE. A home company—a California product. Sold strictly on the approval basis.

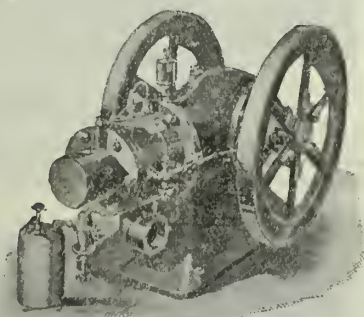
WATCH OUT, WAIT FOR THE NEW C. L. B. 70 H.P. "TRACK" ENGINE—Something better, more surface, more power, more serviceable, less upkeep. Absolutely all steel, all enclosed gears, mounted on springs. A complete self-laying track engine, built entirely in the C. L. Best Gas Traction Co.'s plant.

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This is the engine that you have long been looking for, and it will pay you to purchase now. You can purchase a SIMPLE OIL ENGINE by paying part cash, and the remainder in payments to suit. Better order now and make ready for the NEW YEAR.

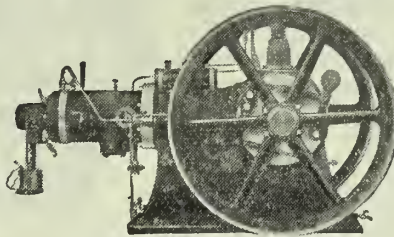
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All we can do here is to ask you to write for the booklet which gives the reason why this new type of engine furnishes such cheap power.

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Hints to Nevada Stockmen.

[Written for the PACIFIC RURAL PRESS by E. A. HOWES, University of Nevada.]

A short time ago it was the privilege of the writer to take a trip through that portion of the country lying directly north of Reno, sometimes in Nevada, sometimes in California. Such an excursion is certain to be interesting if from a scenic standpoint alone—mountain and valley, hill and dell, sagebrush and juniper. The broad expanse of outlook, the clear vitalizing air and the glorious sunshine, these blessings which Nevadans are prone to take as a matter of course of themselves make traveling a pleasure.

However pleasure was not the sole object of the expedition, although none the less welcome on that account. The intention was to observe certain agricultural conditions obtaining in the said region and to study future possibilities. Visitors to the north had spoken in glowing terms of the fertile soil, of water running to waste, and of dry farm possibilities, enough to make one deem a knowledge at first hand well worth the effort to obtain it.

This country is tapped by the N. C. O. narrow gauge railroad and is thus furnished with an outlet for its products. There is the usual very large percentage of mountain slope and plain, covered with sagebrush and with very little else. In this respect nothing new was encountered, except that many tracts bore very large sagebrush, said to be indicative of extra fertility. But here and there one traversed valleys having a deep surface soil, resembling dark garden loam, a soil apparently rich in plant food and strong in water retention capacity.

One man remarked "what wouldn't Italians do if they had that soil near a market!"

Such a statement suggests a fact and also a moral upon which Nevadans might ponder. At present this soil is used, where it is used, to produce hay for the herds that are brought down from the hills in the autumn. It is the main purpose of this article to respectfully submit, in this connection, a couple of suggestions.

ROTATION ADVISED.—It is an essentially economic contention in our day to claim that it is good farming to market the produce of the fields in the shape of butter, eggs, beef, pork, mutton, etc. Therefore we cannot consistently have any quarrel with the intent and purpose manifested by the stockmen who grow hay to winter feed their stock. However, as we looked the situation over, saw the fertile soil just described producing little but hay, and oftentimes a poor quality of hay at that, we were forced to ponder on whether there could not be devised some means whereby that soil might be brought to yield a larger toll. Here was a soil fit to produce any crop, here was plenty of water, here were frequent evidences of sub-irrigation, and all to produce hay.

The advisability, nay the necessity of rotation appealed forcibly to anyone studying the condition. Not only would a short and convenient rotation mean roots and grain for the stock but it would also mean better hay off considerably less territory. Think of it, roots and hay for the cattle or sheep, peas for the hogs and wheat and potatoes on the side to help keep the wolf from the door.

Oh yes, it would mean more labor, but labor paid for many times over by extra produce to feed the hungry demand. By the sweat of the brow shall we eat bread; we do not get something for nothing in agriculture; and yet the labor of interest which reaps results is not to be classed with the routine toil of many other callings.

One other little thought in this connection before we pass on. It is generally conceded that the beef that is fitted up

the most quickly is of the best quality and, as a net consideration, the cheapest. Why then cannot these fertile valleys produce the wherewithal to satisfy these conditions? A better class of animals is being developed through breeding and selection; the further objective should be to fit these animals for market in the quickest and most economic way.

CARE TO DETAILS.—The alert stockmen is he who quickly adjusts his methods to changing conditions, and that conditions affecting stock production have changed materially during the past decade, no one will attempt to deny. The day of wide spread between cost and receipt is a thing of the past, notwithstanding the present high price of meat. The time is with us when the consideration of small savings and the closing up of small leaks, represent the net profits.

Such being the case, is it not well to consider some of the hitherto neglected details in stock management, under range conditions, the details which must now sensibly affect profit and loss? In the field of beef production, for instance, is there anything we can remedy that prevents greater returns for material and labor involved? In this respect the following suggestion is thrown out.

It is now generally acknowledged that the putting on of weight on the part of the animal is much affected by, let us say, comfort. Now it may not be practicable for the stockman to provide covered barns or stables for the stock he has driven in from the range, it may not be necessary. It is, however, advisable that the stock be not unnecessarily exposed to discomfort.

Throughout this north country abound sheltered ravines, many with southerly exposure, where one might fancy animals would take shelter if left to their own devices. Yet in only one case did we see a feeding yard placed so as to lead one to think the stockman had considered the comfort of the cattle. More often would it appear that the idea had been to get the yard close to the hay stacks and the hay stacks close to the meadow.

In many cases there was no attempt at enclosure and the animals roamed at will over the frozen fields to the detriment of the fields and of themselves. Then, too, there often seemed to be no attempt to classify the stock, and yearlings were bunched with market animals.

Of course while the animals get nothing but hay this cannot matter much from a feeding standpoint; but, while it is good to allow young stock to exercise, there is distinct loss in giving the market animals liberty to roam as far and as often as they wish. Why not have the fattening animals, the cows, the younger stock and calves in separate enclosures, and why not avail oneself of means of natural shelter to make all more comfortable?

We are not appealing upon any ground of sentimentality in regard to animal comfort; it is a straight proposition of dollars and cents. The quiet and shelter provided for the animals being fed for market may represent the margin of profit. This also may entail a little extra labor, but here too the labor is paid for many times over.

The foregoing suggestions are offered for the friendly consideration of the men we met and visited, from whom we received the kindest and most courteous treatment, and from whom, like Dick Lorabee, having received some few favors, we naturally expect more.

University of Nevada, Reno.

Contracts for sugar beets to supply the Fallon, Nevada, factory are coming along so slowly that there is talk of moving the plant to some place where more beets can be secured.

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Those who know buy the DE LAVAL

Creamerymen—Because they are experts in the handling of cream and know by long experience that the De Laval skims cleanest and wears longest. That is why 98% of the World's creameries use the De Laval exclusively.

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Men Who Investigate—If anyone takes the time to investigate the merits of the various cream separators, either by finding out from other users what kind of service their machines have given or by testing other machines out against the De Laval, the chances are a hundred to one that his choice will be the De Laval. More De Laval machines are in use than any other make. There is a reason. The De Laval agent in your locality will be glad to tell you why.

The new 72-page De Laval Dairy Hand Book, in which important dairy questions are ably discussed by the best authorities, is a book that every cow owner should have. Mailed free upon request if you mention this paper. New 1913 De Laval catalog also mailed upon request. Write to nearest office.

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We sell more imported horses than all other firms on the Coast because we are direct importers and give a four-year guarantee which is good right at home. We have on hand at all times the largest and best lot of heavy draft stallions and mares, both American bred and imported, to be found any place in the West. If you are in the market for a high-class stallion or mare, don't fail to give us a call, as we can sell you more genuine horse for the money than any other importer in the business.

Address: RUBY & BOWERS, Davis, Cal.

Ruby & Bowers Have Imported More Horses Than Any Other Firm in the United States.

FOR SALE:

100 Short-Horn Bulls

sired by grandsons of King Edward, Hillcrest Hero, Choice Goods and other prize-winning Bulls.

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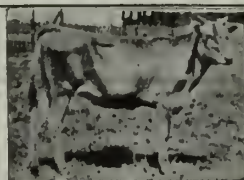
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The only Bull three times Grand Champion at the Fair.



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You don't want one fed on skim-milk and hope. A registered calf is not necessarily a good one. If they are not raised right they never will be right. I have the right stock; they are raised right, and I sell them right. Let me show you.

HILLIER JERSEY FARM, G. O. Hillier, Prop. R. D. 2, Modesto, Cal.

"CALIFORNIA FRUITS AND HOW TO GROW THEM"

For sale by PACIFIC RURAL PRESS, 420 Market Street, San Francisco

WOUNDS AND WOUND SWELLINGS.

To the Editor: What is the proper treatment for a fresh wire cut on a horse? How should saddle galls be treated? Is there any way to make the hair come in its natural color where saddle galls have been? How can an enlargement of a colt's leg, caused from a wire cut, be reduced?—INTERESTED READER, Redding.

In the Special Report of the United States Department of Agriculture on Diseases of the Horse, it states that after all foreign matter has been removed from a lacerated wound, like that made in a wire cut, the wound should be carefully fomented with warm water, to which has been added carbolic acid in the proportion of 1 part to 100 of water. It should then be bandaged to prevent infection. We should say that zinc ointment would be a good thing to use under the bandage.

For a simple saddle, or harness gall, some ointment like the following should be applied and the wound rested up: one pint alcohol in which are shaken the whites of two eggs; a solution of nitrate of silver, 10 grains to the ounce of water; sugar of lead or sulphate of zinc, 20 grains to an ounce of water; and so on. Or advertised gall cures may be applied. If a sitfest has developed, the dead hornlike slough must be cut out and the wound treated with antiseptics.

There is no way we know of to make hair come in with natural color after a wound.

The swelling on the colt's leg may be reduced by rubbing it well several times a day and at night rub in some ten per cent iodine petrogen.

NOTICE TO CORRESPONDENTS.—It is a rule, as will be noticed on page 3 over the column given to questions and answers, that correspondents must give name and address. Initials will generally be used in the paper unless a general name, like Reader, or Subscriber, is desired. We have

answered the above at the office instead of sending it to Dr. Creely, as no name was signed, and hope that the answer will be satisfactory. It is hardly fair to Dr. Creely to ask him to answer questions from persons who we have no way of knowing whether they are subscribers or not, and for the sake of our subscribers we hope that they will sign all letters and get more authoritative replies, in veterinary subjects at least, than could be given by the writer.—D. J. W.

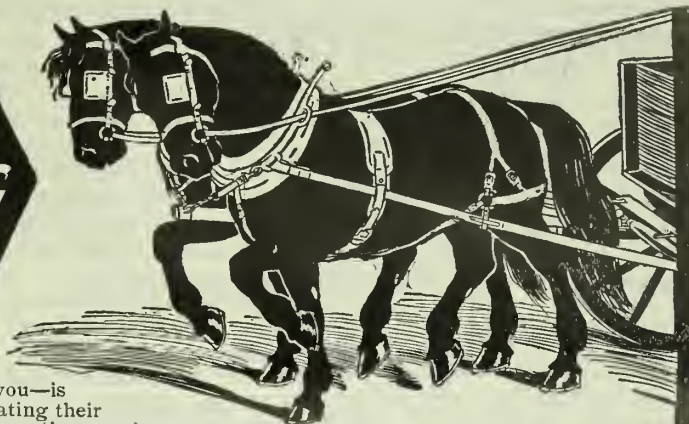
CALIFORNIA MILCH GOATS.

At the meeting of the American Milch Goat Record Association held in Chicago last month, D. O. Lively, extended a cordial invitation for the 1915 meeting of this association to be held at the Panama-Pacific Exposition. The association will be represented on this occasion and a premium list for milch goats will be prepared. Printed matter concerning the value and uses of goats' milk are to be

sent out by the secretary, and a strong effort will be made to get a large importation of milch goats next year in preparation for the exposition. California is represented on the milch goat map by the election of Winthrop Howland of Redlands as one of the directors.

There will be 40 acres planted to dates by C. H. Barrett of Durbow, Riverside county, this season. Great developments in this crop are being made.

KEEP YOUR HORSES IN PRIME WORKING CONDITION



A HORSE in the field—working for you—is worth two in the barn—simply eating their heads off. There is no way of preventing spavin, ringbone, splint or curb from suddenly lamming and laying up your horses—but there is a way of safely and easily curing all these ailments and preventing them from keeping your horses laid up. For over 35 years there has been a reliable remedy that horsemen everywhere have depended on to save them money, time and worry.

Kendall's Spavin Cure

has been the trusted remedy of horsemen everywhere. It has not only been saving untold time, work and worry but thousands of dollars' worth of valuable horseflesh and has many times saved horses from death.

Here's a man—Mr. W. T. Campbell, Macadonia, Ky.—who not only saves money but actually makes money by using Kendall's Spavin Cure. He writes: "I have used 2½ bottles of your Spavin Cure, and have cured two mules of Bog Spavin. I bought the mules for \$80.00 and can now cash them for \$400.00. Shall never be without your great remedy."

Here's another man who has used Kendall's Spavin Cure with remarkable success. Mr. Floyd Nelson, Kings Ferry, N. Y., writes: "I have used your Spavin Cure for the past six years and have made in the neighborhood of \$700.00 buying Spavined horses and curing them. I consider there is nothing equal to it if it is used according to directions."

Never be without a bottle of Kendall's Spavin Cure. You can never tell when accidents will happen—when this remedy may be worth the price of your best horse. It is better to be prepared.

Don't call your case "hopeless" in the face of above testimony.

Next time you go to town get a couple bottles from your druggist. The price is uniform, only \$1.00 per bottle, 6 bottles for \$5.00. At the same time ask for our invaluable "Treatise on the Horse," or write to

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When You Buy a Tractor

When you buy a Tractor, what do you want? You want a Tractor that will do all your work. You want a Tractor that will plow—not only in good weather when the ground is dry, but in bad weather when the ground is wet. Much of your plowing must be done during the wet season of the year. Don't forget that. You want a Tractor that can do your harrowing and seeding. You want a Tractor that will not pack your land and that will not bog down in soft places. You want a Tractor that will pull your harvester up hill, down hill or on a hillside. You want a Tractor that will pull it through sandy and soft places. Remember, if you can't keep up motion you are going to lose grain. You want a Tractor that can be used for stationary work—pumpkin, threshing, wood sawing, running feed crusher or any other stationary work that you might have to do. MOST IMPORTANT OF ALL—You want a Tractor that is immune from excessive breakage and wear.

You Can Get All Those Results Only From a Caterpillar

The Caterpillar is the Only Tractor that is perfectly adapted to all farm work. It is the only Tractor that can work in wet weather when the ground is soft. It is the only Tractor with which you can successfully harrow and seed. It is the only Tractor that can successfully pull your harvester over sandy or soft land.

LAST BUT NOT LEAST—The Caterpillar with its flexible steel track and large ground bearing surface is not subject to jerks and jars that other Tractors must endure. It is therefore immune from breakage and undue wear. It will work day in and day out. It will give the same good service the second, third and fourth year as it will the first. Let us show you what REAL TRACTOR service means. Send the coupon today.

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Season for Hatching.

[Written for the PACIFIC RURAL PRESS by
MRS. S. SWAYSGOOD.]

For some years now there has been a sort of a craze for early hatching. No matter how or what the weather, the hen and incubator has been started at Christmas or New Year. The idea of having winter eggs got so strong a hold on people that they forgot all else.

POULTRY.

THE MANOR FARM RHODE ISLAND REDS have won more prizes, cups and specials during 1912 at the big important shows than all their competitors. Utility or exhibition stock and eggs; also please remember if you order S. C. White Leghorn chicks from our 180-200 egg strain you will want more. Prices on chicks, \$10 per 100; eggs, \$5 per 100. Also Barred Rocks and Minorca eggs and stock. The Manor Farm, Petaluma, Cal.

OUR GOLDEN ANTLERS AND SILVER CAMPINES took several first prizes both for the fowls and the best white eggs at San Jose, November, 1912. From Jan. 1st to Oct. 31st, 23 hens laid 4148 eggs, and are still laying. Crystal White Orpington and Antler pullets for sale. S. & B. G. HAIGH, Route 2, Box 4C, San Jose, Cal.

BUFF LEGHORNS—Booking orders for spring delivery of day-old baby chicks from two-year-old breeding stock; also eggs for hatching by setting or 100; 6000 egg incubator capacity. Indian Runner duck eggs for sale. Baby ducks hatched to order. R. M. Hempel, R. F. D. 1, Lathrop, Cal.

MAMMOTH BRONZE TURKEYS—Young and mature toms and hens, from large utility stock, at SPECIAL LOW PRICES. Good bone, full breasted, well marked, healthy and early maturing turkeys; write for prices. Geo. A. Smith, Corcoran.

WESTERN HATCHERY—Fred Dye, Proprietor, successor to Dye & Fredericks. Now booking orders for day-old chicks, from heavy-laying strain White Leghorns. Prices on application. Box 2, Petaluma, Cal.

SCHIELVILLE HATCHERY—Thoroughbred White Leghorn chicks shipped on approval; examine at your home before remitting; no weak ones charged for. Rural Box No. 72, Sonoma, Cal.

WHITE ORPINGTONS—100 early hatched cockerels and pullets from prize-winners. Sales subject to approval on delivery. Eggs \$5 to \$15 per 15. Jeanne A. Jackson, Oroville, Cal.

GEO. H. CROLEY CO., INC.—Largest and oldest poultry supply house in the West.

S. C. WHITE LEGHORNS—Heavy layers, California's greatest prize winning strain. Eggs, chicks, stock. Send for list. M. Duttenbernd, Petaluma.

ORPINGTONS—Buff and White. Some classily exhibition quality in cockerels ready for service. Mrs. S. Swaysgood, R. 2, Pomona, Cal.

CHICKS—White Leghorn, White Rock; high-class stock. Send for booklet of prices. Mahajo Farm, P. O. Box 597, Sacramento, Cal.

BARRED PLYMOUTH ROCKS, White Minorcas, White Holland turkeys. Stock and eggs only. L. N. Cobblecick, Oakland.

CROLEY'S POULTRY CATHARTIC—Cleanses the fowls, revives their appetites. 25c the box.

BUFF ORPINGTON AND COLUMBIAN WYANDOTTE; eggs and stock. Mrs. Leona Brophy, 1415 N. St., Fresno.

FOR SELECTED EGGS AND CHICKS from S. C. White Leghorns, see Hopland Stock Farm advertisement.

BABY CHICKS, from heavy layers. White Leghorns, Barred Rocks, R. I. Reds. Free folder. White Hatchery, Petaluma.

CHICKENS, DUCKS, GEESE, GUINEAS. Pea fowl. Address Wm. A. French, 545 W. Park St., Stockton, Cal.

TRAPNESTED S. C. WHITE LEGHORNS. Eggs, chicks, stock. A. R. Schroeder, Box P, San Gregorio, Cal.

FREE BOOK—"Poultry Feeding for Profit," on application to Coulson Co., Petaluma, Cal., Box P.

WHITE LEGHORNS—Chicks, eggs, cockerels. Fine stock. Reasonable. O. B. Morris, Lodi, Cal.

BRONZE Turkeys and Eggs. Ed Hart, Clement, Cal. Large size, good plumage, early maturity.

TWIN OAKS FARM—W. U. Bissell, Proprietor, Livermore, Cal.—Buff, White Orpington.

BARRED ROCKS only. Eggs, stock and chicks for sale. G. L. Hawley, Madera, Cal.

CROLEY'S POULTRY REMEDY—For colds, roup, pip, canker and diphtheria. 50c the bottle.

But so many of the pullets hatched for winter eggs refuse to produce them that there is a little hesitation now as to whether the early hatched pullets are the real winter egg layers they were supposed to be. And it is a good thing that we do have seasons of retrospection; if we had not, no telling where our enthusiasm would lead us. So now, except with the man who is making poultry raising a business, very few want to rush into hatching in January because they have found, it somehow does not come out as they had planned. The reason for this set back in hatching is that, as said before the pullets do not lay all winter as was expected.

All the small breeds of poultry, and they are what most people keep, mature at five or six months of age. I know it is claimed they mature earlier, but that is not real maturity, only a bogus sort. If hatched in early January, leghorn pullets should commence laying about August or September. This is just about the time eggs begin to crawl up, and we are very likely to feel proud of having these laying pullets, but pretty soon our joy turns to sorrow for the pullets we depend on commence to molt.

The yards are soon strewn with feathers and as feathers grow more plentiful on the ground eggs grow scarcer in the nests, until soon all we see is feathers and vainly we search the nests for eggs. And this is usually about the time eggs have got to where they should pay to gather them. Now can we imagine any thing more aggravating? Here we have raised those pullets with the sole object of having winter eggs and now they have gone back on us just when we want them the most.

But when we stop to reason about it we find it is perfectly natural because the hens being about a year old are due to molt, and they will molt as the fall and winter months are the natural months for this change of dress in birds. I don't know how it is in a colder climate, but I do know that the fall and winter months is the molting season for this coast.

NATURAL SEASON.—The only way to get around this winter molt is to delay the hatching season until nearer the natural time for hatching. Nature commences to dress the trees in leaf and blossom in early March, sometimes earlier, but March is recognized as the commencement of spring, and chickens hatched in March and April have no superiors for either growth or other qualities. Being hatched in a natural season these pullets will mature and commence to lay almost as early, though not quite, as those hatched in January, but when they do begin to lay they will lay eggs of proper size and they will, other things being right, keep it up during the whole season.

This is a fact that I have found by experience to work exactly as stated. So we often wonder why we are in such a rush to get early chicks, when eggs are what we want in the winter months. Somebody started the idea going and like good docile sheep the rest of us took the track and followed in it. We rob ourselves of the rest that is our due in the winter to commence another year's work in an unnatural season, making more and harder work out of what should be easy simply because somebody else does it.

Now I tell you candidly, that for the small farmer or poultry man it is not necessary to lose your winter's rest to hatch and care for young chicks that are much easier raised in proper season and pay better in the long run.

EGG PRICES HIGH.—Another thing against this craze for early hatching is that eggs bring a fairly good price for food at that time; and they are more profitable to sell than to hatch because they never run very

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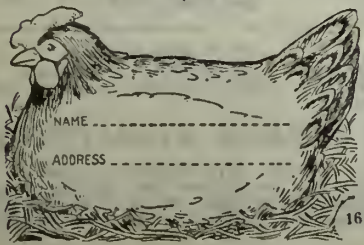
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have her pound of flesh, if we fool her one way she comes back at us some other time when we are not expecting it.

That does not say that we cannot improve on some of nature's plans, but we must work in line with her, not in opposition to her laws. Spring is the natural hatching season for all kinds of young and if we hatch say, in March, then about a month or six weeks later, and follow this with another hatch in one month's time, we can have pullets that will come as a sort of follow up in eggs just about the time the first lot are slowing up a little. Of course poultry men who have a large business to run need to hatch both in season and out, to them we have nothing to say, because being prepared and knowing what will happen they take things as they come and make the best of them.

But the small poultry man or woman who raises one or two hundred chicks with a fond hope of making a little money out of winter eggs are so disappointed when the hens go into molt that they set up a wail that is heard all over the land. "What is the matter with my pullets, they are molting, and only a year old in January?" is the cry, and to one and all the same thing must be said, that the hens are going through a perfectly natural process.

EFFECT OF FOOD.—So far as winter eggs are concerned, hens must be bred for that purpose, if we want the real thing. And of that we shall have more to say later. But by hatching in the spring we can avoid this winter molting, and that is the only way to avoid it.

Even then, some times, hens will molt, when fed too much animal food and too little green food. This is one of the errors in feeding that causes a loss, and it is very easy to correct it. Plenty of green feed is the antidote for an over rich meat diet, the green feed acts as a cooling element and at the same time furnishes the bulk that carries the food through the system. Meat is a concentrated food and must be mixed with food having bulk. Too much of it acts on the fowls, first in an increase of eggs; then if there is more fed than can be used for that purpose it is thrown out of the system by way of the skin and feather glands. It is something like feeding oats to a horse; the oats always make the hair slick and smooth, and as fast as the old hair dies it is replaced by new.

A molt of this kind is not of very long duration nor is the loss of eggs so great, because the system is full of the very elements needed for the new feathers.

None of us know more than a fraction about these things, only as we experiment and find out, and the experience is costly. But so many have experimented with early hatched chicks, that there is no need of any more doing it. By letting them lay market eggs for the next two months, and getting the best price we can we shall be money in pocket. Then when the natural season comes for hatching the chicks will be stronger, and grow quicker. There are several reasons for this, first the parent stock are in better condition for transmitting their vital forces to the eggs, and the chicks being hatched with that vitality in natural seasons cannot help profiting by the combination of causes favorable to them. When complaints are so general about anything, there must be a cause for it; and as every cause preceeds the effect we have to deal with the cause to get rid of the effect.

Very few farmers, or their wives care to bother with early chicks only that they may get winter eggs, and when the hens go into a long tedious molt in midwinter, they very naturally wonder why.

We alluded recently to the distribution of eggs at cut-rates to consumers by women's organizations, much to the discomfiture of Eastern retailers. The following are later statements: One million

one hundred thousand eggs were sold under the auspices of the Chicago Clean Food League in the campaign to break the egg market. This is 400,000 more than were sold the previous day, and concludes the selling of eggs in the present campaign to bring the price down. The managers of the sale claim victory, and point to the fact that dealers throughout the city have offered for sale guaranteed eggs at the league's price of 24 cents a dozen or less. A few egg-selling

stations will be maintained permanently in different parts of the city, it was announced tonight, as "monitors" to see that the price of eggs is kept down. These, however, will not undertake to supply eggs in great quantities as in the last two days.

On December 20 the prices of all grades of eggs were coming down in Philadelphia as a result of the campaign conducted by the Housekeepers' League to reduce the cost of living.

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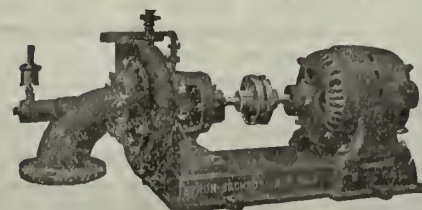
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Ground Squirrels of California.

[By H. C. BRYANT, in Circular 82 of the University Experiment Station.]

Two rodents in the State of California give the rancher more trouble than all other animal pests combined, insects excepted. One, the pocket gopher (*Thomomys* sp.), feeds largely on the roots of plants and trees and hence is one of the worst pests of the garden and orchard. The other, the ground squirrel (*Citellus* sup., *Ammospermophilus* sp., *Callospermophilus* sp.) is especially destructive to grain, but it is also destructive to nuts and fruit. The established fact that the California ground squirrel is instrumental in spreading bubonic plague has made these animals of more than ordinary economic importance.

CLASSIFICATION.—These two principal rodent pests are easily distinguished by their general appearance, size, habits, and burrows. The pocket gophers have very short ears, small eyes, short tails, and cheek pouches which open externally; they are relatively small (6 to 10 inches), largely nocturnal, and live almost entirely in their burrows. Ground squirrels have relatively large ears and eyes, longer tails, and the cheek pouches do not open externally; most of them are larger in size, diurnal, and forage for food above ground. The burrow of the pocket gopher can be distinguished by a mound of earth surrounding the entrance, and by the fact that the opening is nearly always kept plugged full of earth. The burrow of the ground squirrel on the other hand is usually open, with the excavated earth thrown out on one side of the entrance only. One or more runways lead away from the burrow.

According to Merriam, the ground squirrels of California may be arranged in four groups: (a) the large, long-eared, gray ground squirrel (subgenus *Otospermophilus*); (b) the small, short-eared, brownish species (genus *Citellus*); (c) the small, white-striped, antelope ground squirrel of the deserts (genus *Ammospermophilus*); (d) the golden-mantled ground squirrel of the mountains (genus *Callospermophilus*).

MENACE TO HUMAN LIFE.—The "digger" ground squirrels (*Citellus* sp.), which belong to the subgenus *Otospermophilus*, are not only the most destructive, but are the disease carriers. These ground squirrels usually live in colonies, their burrows often being connected for a considerable distance. Food in the shape of grain, seeds, and fruit is stored for the winter season. The call note is a single loud whistle. The warning note is a similar short whistle followed by two or three chattering trills. Young, numbering from five to ten, are usually born in March and April. This ground squirrel has been found infected with bubonic plague, and several cases of human plague have been traced to a bite of one of these animals. The real danger of the spread of infection lies in the dissemination of infected fleas. As has been shown by the recent campaign against these ground squirrels, carried on by the U. S. Public Health and Marine Hospital Service, eradication of this pest depends largely on persistent work of the individual.

RANGE OF THE SPECIES.—This group of long-eared gray ground squirrels has a wide range, being found throughout the State. Several species and several varieties of each have been recognized. Each variety or subspecies occupies a fairly well-defined region of the State, so that they can usually be distinguished by the locality in which they are found. The northern coast form is known as the Douglas ground squirrel (*Citellus douglasii*); that of the interior valleys, as the California ground squirrel (*Citellus beecheyi beecheyi*); and that of southern California, as the Fisher ground squirrel (*Citellus beecheyi fisheri*).

In the extreme northeastern corner of the State and to some extent in the northern part, a smaller brown squirrel is found in abundance. It is known as the Oregon brown squirrel (*Citellus oregonus*). The ground squirrel of the desert is much smaller than the common "digger" squirrel, and is striped. It is called the desert or round-tailed ground squirrel (*Citellus tereticaudus*). A small striped form belonging to another genus (*Ammospermophilus*) is found to a limited extent in the San Joaquin valley, and a variety of the same species in the rocky places in the deserts and foothills bordering the deserts. These forms are known as the Nelson ground squirrel and the Antelope ground squirrel. Neither are abundant enough to be of great economic importance. Golden-mantled ground squirrels (*Callospermophilus* sp.), more often called red-headed chipmunks, are mountain species and seldom give trouble.

CONTROL OF GROUND SQUIRRELS: By H. J. QUAYLE.—There are two methods of destroying ground squirrels: first, by means of poisoned grain, and, second, by the liberation of carbon bisulfid in their burrows. Which of the methods to be followed will depend upon this season, the poison grain method being more effective during the dry season, while the carbon bisulfid treatment will be more effective during the rainy season when there is sufficient soil moisture to prevent general diffusion of the gas beyond the open burrows.

Where ground squirrels are abundant over considerable areas, the simplest, most effective and least expensive way to destroy them is by the use of poisoned grain. Barley is the grain to be preferred, since it is more attractive to the



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squirrels and less likely to be eaten by birds.

The formula and method of preparation are as follows:

Clean barley20 quarts.
Strychnia sulphate (ground or powdered)1 ounce.
Saccharine1 teaspoonful.
Gloss starch (ordinary laundry starch)½ teacupful.
Water1½ pints.

Dissolve the starch in a little cold water and add 1½ pints of boiling water, making a rather thick solution. While hot, stir in the strychnine and mix until free from lumps; then add the saccharine and beat thoroughly. Pour in the poisoned starch over the barley and stir rapidly until the poison is evenly distributed; then allow the grain to dry. When dry it will keep indefinitely without deterioration.

By this method a coating of poison is formed on the outside of the grain, which acts much more quickly than if the grain is boiled or soaked in the poison. Squirrels are also readily killed by carrying such coated grain in their cheek pouches while storing food for future use.

PUTTING OUT THE POISON.—The poisoned grain should be scattered (not placed in heaps) on clean hard places about the colonies, the trails between the holes, along fences and roadsides and other places frequented by the squirrels. The time to apply it is during the dry season. If distributed just at the end of the rainy season, late March or early April, it will destroy them during the breeding period, when one is killed it is equivalent to eight or nine later in the season. The poisoning may continue, however, throughout the summer and early fall. The poisoned grain as it is scattered about is not dangerous to stock, but is fatal to poultry.

COST.—The cost of preparing the material according to the formula given varies from about \$4.00 to \$4.75 per 100 pounds. One hundred pounds of the poisoned barley is sufficient to treat 200 or 300 acres. It may be distributed from horseback.

CARBON BISULFID.—A tablespoonful of crude carbon bisulfid is poured over a small ball of cotton waste, corn cob or other absorptive material and placed as far down the burrow as possible, and the hole is tramped in.

It is used to best advantage when the soil is wet. In wet soil the interspaces are filled with water and thus general diffusion of the gas through the soil is prevented.

Carbon bisulfid is a volatile liquid and rapidly loses its strength on exposure to air. It should therefore be kept in tight containers. It is also inflammable and explosive. It should be used only in burrows known to be inhabited by squirrels. The cost of crude carbon bisulfid is about 8 cents per pound in 50-pound carboys or drums.

The two methods described, poisoning and the carbon bisulfid treatment, may well supplement one another. Where the area is extensive the poison may first be used, because of its cheapness, and this followed in the proper season with the carbon bisulfid to clean up those that escape the poison.

Small areas may be freed from squirrels, but these are likely to be quickly reinfested again from the neighboring territory. It is often important, therefore, for the people of a district to unite in a co-operative campaign and free large areas from the squirrel pest.

[There is wide range between different recipes as to the amount of strychnine to be used. The stronger the poison the fewer the grains the squirrel has to eat, and heavy poisoning is becoming more widely approved.—EDITOR.]

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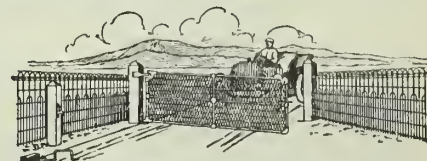
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AGRICULTURAL REVIEW.

(Continued From Page 79.)

profit can be shared between producer and consumer.

Even outside of California co-operation is becoming very popular. Growers of Arkansas, Oklahoma, Louisiana and Texas have gotten together to form the Four-States Fruit & Truck Exchange, officers of which have already been elected. The objects are to co-operate in the distributing and marketing of produce, and in the buying of supplies, and other activities of benefit to producers and to the industry.

The annual meeting of the Fruit Growers' Association of Kerman is to be held this evening, January 11, at which time officers will be elected. J. W. Jeffrey, secretary of the California Cured Fruit Association, is to speak on the Association, and the Kerman Association may decide to unite with it.

Word comes of good progress of the California Raisin Association. From the Kingsburg and Reedley section at least 50%, it is said, of the acreage to raisins has been contracted to the new organization, in spite of the short time that the contracts have been out. A favorable reception like the above assures a very strong Association.

Last month a co-operative association was formed at Spokane, to cover the marketing of a large part of the fruit grown in Montana, Idaho, Washington, and Oregon. The Association will be composed of a union of many of the local associations that have been of great value to fruit men of the Northwest in securing

good prices for their fruit and advertising the value of Northern fruit.

Large Land Deals.

Several large land deals have recently been consummated. More than half of the Chowchilla Ranch in Madera and Merced counties, 66,000 acres out of 108,000, has been sold to a syndicate composed of J. W. Goodwin, president of the Oro Electric Co., E. W. Howard of the Howard Cattle Co., and Robert Easton of Santa Barbara. The president of the new company is interested in the Tidewater & Southern Railway, which has its line surveyed through this property. The United States Farms Lands Co., which sold this property, will continue to develop the 42,000 acres remaining and dispose of it to settlers. Another large deal was for \$450,000 worth of tule land opposite Ryer island, Solano county. W. F. Chanler is the former owner. The name of the purchaser is not given. Near Williams, Colusa county, 872 acres were sold to a company composed of J. M. Mendenhall of Williams, Dr. Chas. Keane, State Veterinarian, Dr. J. P. Iverson and several others. The land will be planted to alfalfa and later subdivided. Three other tracts totalling 1106 acres in the vicinity were also sold to the Melone company of Oakland. It is probable that this property will be set out to sugar beets.

More Alfalfa, More Beef.

The 320-acre Ashe ranch, four miles north of Turlock, has been sold to the Reis Estate of San Francisco, and is to be checked up for alfalfa at once. This company owns the Santa Margarita ranch in San Luis Obispo county and will use the alfalfa to fatten up the cattle raised on the latter.

The Natomas Consolidated is to plant 1,800 acres to alfalfa, just west of Wheatland, at Rio Oso. This land was formerly overflowed and covered with brush and tule. It is exceptionally fertile and should produce heavily. A 303-acre ranch near Nicolaus, Sutter county, has been purchased by E. L. Miller of Oklahoma, and will be planted to alfalfa this season. A large dairy will ultimately be established on the property.

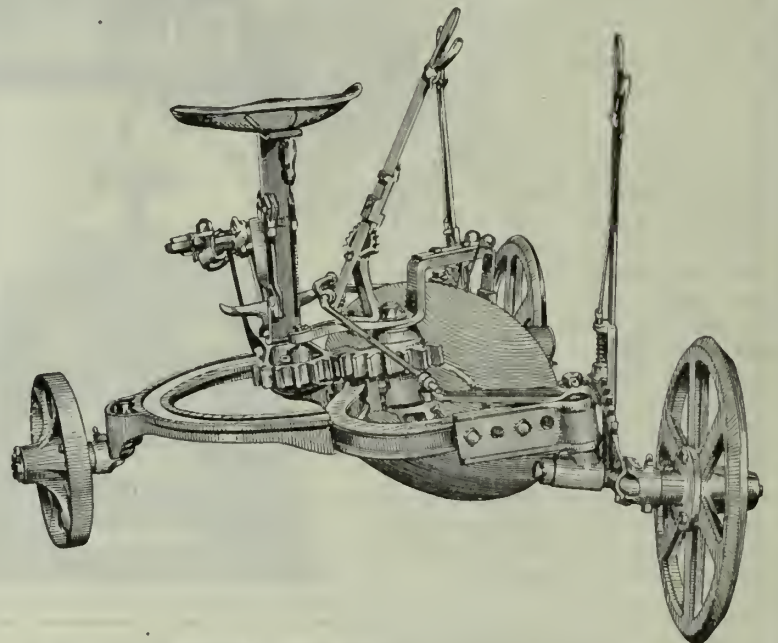
The Porterville Alfalfa Co. is planning further developments on its property in the Poplar district, Tulare county. Recently-elected officers are: E. E. Graham, president; W. E. Premo, secretary and manager; H. C. Carr, treasurer; E. E. Graham, H. C. Carr, G. L. Robbins, J. A. Ulmer and F. E. Bears, directors.

Glanders Test in Doubt.

A temporary injunction has been secured by the Schmidt Construction Co. of Berkeley to prevent the slaughter by the State of 11 horses that reacted to the test for glanders. The Schmidt company informs us that the trouble started several years ago, when a number of the horses came down with some disease which the owners thought was influenza, but was diagnosed by an Alameda county veterinarian as glanders. They were therefore shot and the remainder of the horses, over 100, were given the mallein test, 54 reacting. These were ordered shot, but a compromise was effected whereby they were segregated from the other animals and examined weekly by a veterinarian. At the end of the year the test was again applied, 25 reacting, and the others being in good health. None had shown symptoms of glanders in the meantime. A similar compromise was again effected. During the year three of the horses received injuries while at work and had to be shot; the others finished out the year in good shape. The next test was made through the State Veterinarian, and of the 22 animals, 11 reacted and were

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Simplifies hillside plowing. All furrows turned same way. Equally adapted to level land. Equipped with patent adjustable tongue, operated by driver's foot without leaving seat. Easy on the horses. Guaranteed to do good work in dry, hard or fallow ground, either clean, trashy or rooty. All levers conveniently placed and easily operated from the seat. As a deep tiller is a great success. Highest grade material used in construction. Very popular and without doubt the best plow on the market. Absolutely guaranteed and up to date. Send for plow circulars.

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ordered shot. The Schmidt Bros., believing that the disease in the first place was influenza and that glanders had never really appeared, since there had been no symptoms of it in the two years and over, refused to comply with the order and secured the injunction. The matter will be further thrashed out in the courts. It is known, however, that the mallein test is occasionally unreliable and, if the above is correct, apparently this is one of the cases where it fell down.

Bad Lambing Conditions.

Sheepmen of the Livermore country have moved their flocks to the lambing grounds in spite of the fact that the lack of rain up until recently has left the section almost without feed, while the bottom lands were still in good shape. Fear of possible floods after lambing started, and that the flocks could not be moved, was responsible for the change. The sheepmen, however, are getting potatoes at very low prices from Stockton and feeding these with some alfalfa hay and corn, according to the Livermore Herald. The grass in the foothills is very poor, although toward the top of the hills it is better. The recent rains are expected to make the season come out quite well.

Poultrymen to Co-operate.

Plans for co-operating in marketing eggs and poultry were completed at the meeting of the Santa Clara County Poultry Association last week. The Association went on record favoring co-operation with Petaluma, Santa Rosa, and Alameda county producers in attempting to get better marketing of eggs in San Francisco. It was decided that if 200 of the largest producers got together, the market could be well regulated, to the advantage of both producer and consumer. The Association also passed a resolution

requesting a law further limiting the time that eggs could be held in cold storage and yet sold as fresh eggs. The new officers are: E. B. Smith, Mountain View, president; first vice-president, Dr. J. B. Bullitt of Berryessa; second vice-president, Mrs. Dickinson of Los Gatos; treasurer, H. M. Billings, San Jose; association secretary, George R. Greenleaf of Pala; show secretary, C. R. Harker, San Jose; auditors, E. M. Goss and C. Emery of San Jose; executive committee, Miss C. J. Smith of San Jose, Mrs. C. C. Marcuss of San Jose, W. S. Sullivan of Agnew, V. Ruh, C. R. Harker, H. Biebrach, H. Berrar, Dr. F. Pierce, all of San Jose, and E. R. Everett of Linda Vista.

Form Cow-Testing Association.

The progress in improvement of dairy herds in California is demonstrated in the completion of the organization of the Holtville Cow-Testing Association, Imperial county. There are 32 members, with 1,022 cows to be tested. One year ago there was but a single cow-testing association in operation in the State. Now there are four, with a fifth in process of formation, this also in Imperial county. This county is rushing rapidly toward the top in production, and dairymen elsewhere will have to look out if Imperial does not soon lead in butter production and in methods. The officers of the Association are: E. J. Norrish, president; S. C. Tompkins, vice-president; George Kendall, secretary-treasurer; W. C. H. Mott, C. M. Miller, with other officers, directors.

Hereford Sale.

The Hereford sales of Warren T. McCray, of Kentland, Indiana, are usually "red-letter" days for the Hereford breed. His sale that will be held at Kentland on February 26th will, according to Mr. Mc-

Cray's statement, eclipse any sale that he has recently held. Of the 25 bulls listed, 10 are by "Perfection Fairfax" and 14 are the produce of his sons or daughters. "Perfection Fairfax" is the sire of the grand champion of America this year, and repeatedly for the last two years, his gets have stood first and second at every national show held on this continent where they have been exhibited. Ten head of these bulls which are in the sale are past two years old—great, strong, vigorous bulls of scale and quality that buyers can't find anywhere else, while the yearlings are rich in future prospects. Fifty cows and heifers are a choice lot, indeed, including everything from tried matrons in the herd to females fitted to fill all classes for show-yard honors another season. Any Pacific Coast Hereford men who are in need of such cattle should attend this sale. If they find it so that they can't go there, kindly mail your bids to the auctioneer in care of Mr. McCray, Kentland, Ind., or to W. M. Carruthers, who expects to be there.

A Few Fruit Items.

A rumor that a quarantine will be lifted against Florida fruit, on account of the freeze, which has been circulating, is utterly without foundation. California will have an abundance to ship, to say nothing of wanting to import fruit from Florida, and no infected stock or fruit will be permitted to come in to endanger our fruit industry.

The Wasco, Kern county, citrus men met this week to arrange for the formation of a fruit-growers' association.

Big prices for grapes were received from the last seven cars of Emperors shipped East by the Pacific Fruit Exchange from Dinuba. Manager Roy W. Wyllie stated that the average was \$2,030 per car, netting \$1.31 per crate. Some of the fruit brought \$4 per crate.

There will be 40 acres to dates planted by C. H. Barrett of Durboy, Riverside county, this season. Great developments in this crop are being made.

The 116-acre prune ranch of Col. Philo Hersey, on the Saratoga road near San Jose, has been sold to Theodore Keech, formerly of Pittsburg.

Sugar-Beet Seed Comes.

A single shipment of sugar-beet seed recently arrived in Los Angeles. It contains 3,925 sacks of seed, enough to plant out 5,000 acres, and was consigned to six different companies. The shipment came in a hurry, so that planting could be done as soon as possible. In the Sacramento valley the crop will be in two months earlier this year than last. Both companies are far along with their work and will have a big acreage.

Southern Tomatoes Profitable.

From the districts around Anaheim, Fullerton, and Placentia 65 cars of tomatoes were sent out this season. These tomatoes were all grown on land which also produced other crops and have been nearly net profit to the growers. There has been a large planting of cabbage this year in the district, as is the case in other parts of the country.

The Celery Growers Association of Smeltzer shipped from Orange county about 100 cars of celery for the holiday trade. The cold spell of several weeks ago cut down the quality considerably, and that of early this week has done still further damage.

Miscellaneous Matter.

L. H. Umstead, of the American Tobacco Co., has been putting in some time at Dinuba to demonstrate matters connected with the proper culture of Turkish tobacco.

Suburbanites on the peninsula south of

San Francisco are undertaking a systematic fight against mosquitoes. Land will be permanently drained as a basis of the work.

A big gang-plow is being used by Jensen brothers of Newman. The plow is composed of fifteen 10-inch plows, cutting 150 inches. It is hauled by a traction engine and is capable of turning over 30 to 40 acres per day.

SHORT-HORN SALE.

The great sale of Short-horns to be held at Chicago on February 12, 1913, by White & Smith, of St. Cloud, Minnesota, will be one of the chief events of the year. This herd is better known to our readers as the old N. P. Clarke herd, which for the last quarter of a century has been one of the leading herds to hold up this great breed in North America. Leslie Smith, the junior partner of this new firm, and who held the active management while the herd was owned by N. P. Clarke (conceded to be one of the best of his kind on either side of the water), writes the RURAL PRESS the following about the cattle that are to go under the hammer on February 12 of this year:

"The Short-horn cow 'Roan Queen' will be the chief attraction. In the show-ring she started out as a heifer calf and has waded through every period of her life as a winner, and recently, at the International, she was awarded her crowning success by being made grand champion of the show as a two-year-old heifer. She is in calf to 'Ring Master,' which makes her of double value, as 'Ring Master' has been for four successive years made grand champion of the breed at the Kansas City Royal. As a yearling two-year-old, three-year-old, and this year in his four-year-old form.

"There will be a large number of richly bred cows sold in the sale with either calves at foot or in calf to this great bull. As the catalogues have not come to hand, the names of these cows cannot be given."

Mr. Smith writes that the "Ring Master" yearling heifers will be a great attraction, and many of them are of high-class show-yard type. "Superbus," a bull which has done a great deal in this herd in the last few years, is in the sale. He is a half-brother to the great show cow, "Lovely of Ardmore," so well known to our Pacific Coast breeders. He has a great show-yard record as well as being a good breeder, and the man who gets him will get a tried sire.

DAIRY ASSOCIATION BILLS.

In previous issues we have mentioned the plans of the State Dairy Association and the Creamery Operators' Association in preparing bills for submission to the legislature that would be a vast improvement over present conditions, especially those owing to municipal regulations of dairying. These bills have been prepared by the legislative committee of the two associations. A summary of the bills made by S. A. W. Carver, secretary, is as follows:

1st. A bill creating a municipal milk commission consisting of two doctors, two practical dairymen and one veterinarian, providing for a uniform State law governing the production and sale of milk for the supply of incorporated cities, including dairy inspection and sanitation and a practicable method of dealing with bovine tuberculosis without the compulsory and indiscriminate use of the tuberculin test, and depriving cities of the power to pass any ordinance inconsistent with the State law. The purpose being to retain all that is good and eliminate all that is impractical or bad in the present city ordinances, and substitute a uniform State law, for the present confused and conflicting mass of

city ordinances, every one differing from the others.

2d. A bill to aid in the prevention, control and eradication of contagious abortion and tuberculosis among dairy cattle, by enlarging the duties and work of the State Dairy Bureau and giving it charge of such work, with an additional appropriation of \$10,000 per year, and authority to employ two veterinarians of high standing, who are specialists in diseases of dairy cattle.

3d. A bill to amend and render more effective the present law to prevent the importation of diseased or tubercular cattle.

4th. A bill to amend and render more practical and effective the present law relative to the production and sale of certified milk.

5th. A bill to protect and improve the quality of creamery butter by requiring the grading of all cream used in the making of butter.

6th. A bill to correct various defects (mostly unimportant) which experience has brought to light in the present general State dairy law.

Mr. Carver further writes:

In addition to the impractical and detrimental measures sure to be urged by the city health officials, doctors, club-women and veterinarians, there is a well organized movement on foot to create a State Department of Agriculture, embracing various bureaus, one of which is to be

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WANTED—FRESH YOUNG COW; Jersey-Holstein preferred. Address, stating price, Edward J. McCutchen, Merchants' Exchange Bldg., San Francisco, Cal.

FAIRMS WANTED—We have direct buyers. Don't pay commissions. Write describing property, naming lowest price. We help buyers locate desirable property free. American Investment Association, 93 Palace Bldg., Minneapolis, Minn.

TREES AND NURSERY STOCK.

WALNUTS—35 acres, specially selected deep rich loam soil; excellent drainage. Five-inch pumping plant installed. Set out mostly to California Blacks to be grafted later, some Mayette, Franquette, and Willson Wonders. Beautiful location; electricity and all conveniences. Price \$250 per acre. Address owner, 1007 Second St., Sacramento, Cal.

AVOCADOS (budded), Feijoas, Cherimoyas, and other subtropical fruiting plants and trees. We have the largest and finest stock of budded avocados, and the best varieties. We grow only subtropical fruits of proven adaptability and sterling merit. Send for pamphlet. WEST INDIA GARDENS, Altadena, Cal.

New Illustrated Catalogue Free. Mention this paper. Before planting see our large experimental orchard near railroad and main highway. Leonard Coates Nursery Company, Morganhill, Cal.

FEIJOA—This superb new fruit is hardy all over California. Sure to be one of our great commercial fruits. Write for prices. COOLIDGE RARE PLANT GARDENS, Pasadena, Cal.

WALNUT TREES—Late varieties, grafted and budded on hybrid root—Bureka, Franquette, Mayette, Concord and Placentia. Dr. W. W. FITZGERALD, Elks Bldg., Stockton, Cal.

VILLA ANNA NURSERY—Fruit and ornamental trees. Burbank standard cactus a specialty. Santa Rosa, Cal. Write for catalogue.

NORTHERN GROWN POTATOES, selected for seed, 1½ c. per pound. O. C. Langfield, Davis Creek, Modoc Co., Cal.

FRENCH WALNUTS—Franquette, Mayette, grafted on hybrid California black our specialty. Sunset Nursery, San Jose, Cal.

Bitter Almond trees, clean and thrifty. Walnut and Pecan catalogue free. Tribble Nurseries, Elk Grove, Cal.

E. A. Bennett, of Ducor, Cal., will quote you sour orange seed, delivered to any postoffice.

CITRUS TREES—Washington Navel, first-class stock, half inch and up. C. Ledig, Globe, Cal.

IRIS—New descriptive Price List now ready. The Dean Iris Gardens, Moneta, Cal.

the Bureau of Animal Husbandry in charge of the State Veterinarian, with the State Dairy Bureau abolished and its work transferred to and handled by the Dairy Division under the control and supervision of the Bureau of Animal Husbandry.

The dairy industry of the State is our second most important industry. It is second only to our great fruit industry. Its growth has been phenomenal during the past few years. The conspicuously efficient work of our State Dairy Bureau has contributed largely to this rapid development. We should strengthen the State Dairy Bureau and broaden its work. Nothing at this time could be worse for the dairy industry than to have its supervision taken from the State Dairy Bureau and placed under the control of the office of State Veterinarian. Except for this bad feature, there would appear to be no objection to the plan for a State Department of Agriculture.

LAND FOR SALE.

Free Pasture Half Knee High. Cows on Butterfat Payments. Irrigated Alfalfa Land, \$75 to \$150. Los Molinos is one section of the State of California that has enough rain this year to make feed—hundreds of acres of it that you can have free; clover, wild oats and volunteer grain.

This district had plenty of water last season when practically all of the state was short.

There is enough snow on the mountains right now to insure plenty of water for next year.

Districts that were short last year will be short again this year, because in those sections there was no early mountain snow. Late snow melts and affords no water for the latter part of the season.

Come to Los Molinos while you can get land where you are sure of water.

Gravity irrigation, the best system in the state.

You will never again have the chance to start under such favorable conditions.

Cows furnished on butterfat payments.

Free pasture that will support them until you can grow alfalfa.

Cheap water and plenty of it.

Land that will produce 10 tons of alfalfa per acre; now worth \$14.

Deep sediment soil that will grow anything that grows anywhere. Ideal for vegetables and fruit.

Oranges never freeze here, because they are harvested in November.

No sand or dust storms.

Land only one-tenth cash; eight years to pay out.

If you know conditions in California you will understand why we have sold more land the last two months than any other company in the state.

And it's getting scarce.

This opportunity will not wait.

Come at once or write today.

LOS MOLINOS LAND CO., Los Molinos, California.

A FEW CHOICE RANCHES at prices guaranteed right. Deep loam soil; abundance of ditch water; splendid drainage; beautiful oak trees; cheap electricity; ½ mile from R. R. station; 2 miles from big live town. All in good young stand of alfalfa. Divided as follows: 116, 55, 25, 24 and 11-acre tracts. For particulars, apply to PAUL GOODLOE, Soil Expert, Phelan Building, San Francisco.

MISCELLANEOUS.

AIR-SLACKED LIME—Lime corrects soil wrongs, helps other fertilizers to do their proper work. Can I help you? H. B. Matthews, Fertilizer Chemist, 733 Merchants Exchange Bldg., San Francisco.

FIRST-CLASS ALFALFA HAY FOR SALE—Second, third and fourth cuttings. Apply to IRA A. WILLIAMS, Live Oak, Cal.

FOR SALE—12-foot windmill and 30-foot steel tower for same; all in good order; recently purchased; reason for sale, not enough wind; price right. LEONARD COATES NURSERY CO., Morganhill, Cal.

J. E. LAWRENCE, 210 Clay St., San Francisco. Broker and Commission Merchant. Handles all farm products. Ship direct or send samples.

FOR SALE—Dwarf evergreen broom-corn seed at 5c per pound. DENAIR BROOM FACTORY, Denair, Cal.

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Guaranteed, Rebuilt and Repaired in our shops; several of this list practically new. Will ship on approval to responsible parties.

1—2-H.P. Root Van Dermoot.....\$65.00
3—4-H.P. Samson (new model).... 90.00
2—6-H.P. Samson (new model)....135.00
16—8-H.P. Samson (new model)....150.00
5—10-H.P. Samson (new model)....200.00
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The Home Circle.

How to Make Walnut Bread.

California is planting so many walnuts it is desirable that everything possible should be done to get people to eat more walnuts. We can take a hint from an eastern walnut promoter, D. N. Pomeroy of New York State, who describes his faith and his works in the Rural New Yorker:

"It is an admitted fact that nuts are more nutritious and healthful food than flesh, and their consumption is greatly increasing year by year. The fact of this country consuming more than 50,000,000 pounds of English walnuts a year assists one in grasping this thought. But of this stupendous amount 27,000,000 pounds have to be imported. We import each year from various foreign lands nuts to the value of 12 or 13 millions of dollars. This amount, we may be surprised to know, is more than the value of all the apples exported in any one year from both Canada and the United States."

Admitting the beneficial employment of nuts in the diet, anything which tends to encourage their more general use is surely a step in the right direction. In the forthcoming programme of the Western New York Horticultural Society three prizes are offered. Contestants can use the following recipe or one of their own:

ENGLISH WALNUT BREAD.— One egg, one-half cup of sugar, $1\frac{1}{4}$ cup of sweet milk, four cups of pastry flour, four teaspoons baking powder, one teaspoon of salt, one cup of English walnut meats in small (one-fourth) parts stirred through batter; two ordinary sized bread tins; let stand three-fourths of an hour before putting in oven."

This is a tested recipe, but others are good.

How He Was Caught.

A good story is told about one of the officials of a Chinese province. He held the rank of magistrate, and was a very keen and just man.

One day he found a little girl crying as if her heart would break. He stopped and tried to ask what her trouble was, but she could not understand him, as he could not speak her dialect. So he stepped back and called one of his men. He found that the girl was a seller of little greasy cakes, something like our doughnuts, and had been robbed. He had her brought into his yamen, donned his court robes, brought the girl into the judgment hall, and there began to hold high court.

The little girl cried so that it was hard to get her story from her, and there were no witnesses who could be called. First the attendants and yamen runners and servants crowded around. The word went out that the great, wise magistrate had gone daft for once, and the people from all around began to crowd in. First they wondered, then they began to laugh. Finally, the official looked up, and seeing them laughing, he straightened up, rapped on the table, and said: "Bolt the doors! You come in here and laugh at me when I am trying to be a father to my children and protect the innocents, will you? Bring me eight cash, every one of you; put them here on this table, and the little girl shall have her money back, and more."

The people did not like this very will, but there was no help for it, and each walked up and put his money on the table. The magistrate received each one's cash

separately, counted it and placed it on one side. Finally, one man came up and put down his money, and as the official looked it over, he said: "What do you mean by giving me such dirty, greasy cash for this little girl? Give me eight more. What! These all greasy, too! You are the man! You stole this girl's money!"

So the thief was caught and the girl's money restored. China has many officials who really seek to help their people, especially among the younger men. This magistrate is a young man, and this happened just a few months ago.—Household Journal.

Self-Reliance.

Henry Ward Beecher used to tell this story of the way in which his teacher of mathematics taught him to depend upon himself:—

"I was sent to the blackboard, and went, uncertain, full of whimpering.

"That lesson must be learned," said my teacher, in a very quiet tone, but with a terrible intensity. All explanations and excuses were trod under foot with utter scornfulness. 'I want that problem: I don't want any reasons why you haven't it,' he would say.

"I did study two hours."

"That's nothing to me: I want the lesson. You need not study it at all, or you may study it ten hours, just to suit yourself. I want the lesson."

"It was tough for a green boy, but it seasoned me. In less than a month I had the most intense sense of intellectual independence and courage to defend my recitations."

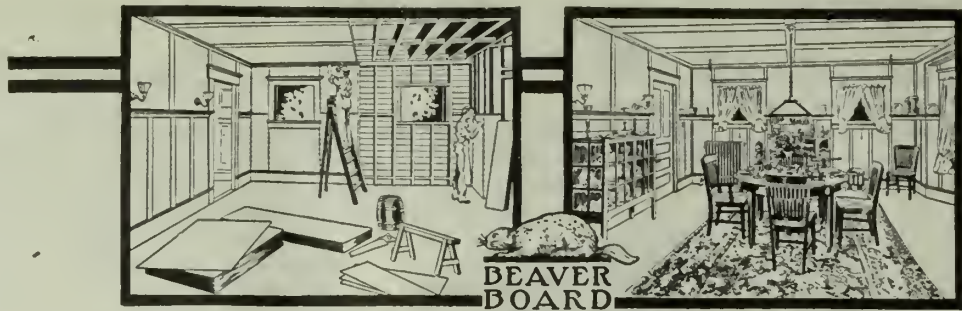
"One day his cold, calm voice fell upon me in the midst of a demonstration, 'No,' beginning; and on reaching the same point again 'No!' uttered in a tone of conviction, barred my progress.

"The next! And I sat down in red confusion.

"He, too, was stopped with 'No!' but went right on, finished, and, as he sat down, was rewarded with 'Very well.'

"Why," whimpered I, 'I recited it just as he did and you said 'No!'"

"Why didn't you say 'Yes,' and stick to it? It is not enough to know your lesson; you must know that you know it.



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Made entirely of selected woods, reduced to fibrous form and pressed into panels of uniform thickness, with handsome pebbled surface. Made in convenient sizes for every purpose. Small quantities furnished for making many decorative and useful household articles. Full instructions for application. Apply to

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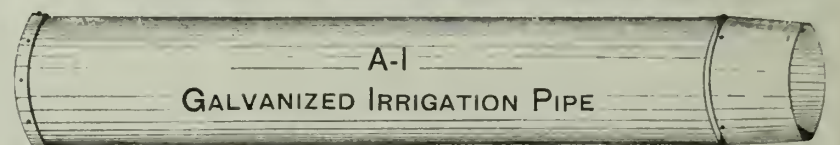
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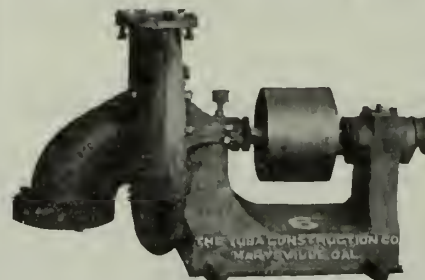
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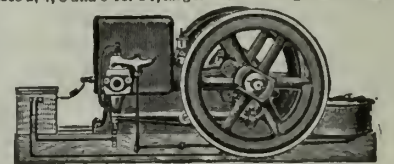
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"California Fruits" "California Vegetables"

Fifth Edition, Postpaid \$3 per copy.

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AT PACIFIC RURAL PRESS OFFICE,
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THE MARKETS.

San Francisco, Jan. 15, 1913.

(Unless otherwise noted, quotations represent prices paid to the growers.)

Cereals.

WHEAT.

While local business is largely of a jobbing nature, large shipments are coming down from the north coast, and the market is gradually stiffening in sympathy with northern conditions. All lines have been marked up a little, and there are indications of further advance.

California Club	.....\$1.52½ @ 1.55
Sonora	..... Nominal
White Australian	..... Nominal
Northern Club	..... 1.52½ @ 1.55
Northern Bluestem	..... 1.62½ @ 1.65
Northern Red	..... 1.62½ @ 1.65

BARLEY.

More favorable weather has caused some easiness in futures, and the spot grain is also a little lower, though arivals are light and holders in the country are rather firm in their views. Some barley is being brought in from the north.

Brewing and Shipping	.....\$1.45 @ 1.50
Choice Feed, per ctl.	..... 1.32½ @ 1.40
Common Feed	..... Nominal

OATS.

The rain has caused a revival of the demand for seed, and an active movement is expected. Prices show a little more firmness, but have not yet been quotably advanced.

Red Feed	.....\$1.85 @ 1.90
Seed	..... 2.00 @ 2.10
Gray	..... Nominal
White	..... 1.60 @ 1.65
Black Seed	..... 2.20 @ 2.35

CORN.

Prices stand about as before, no California corn being offered here. Eastern corn shows somewhat more firmness, and some advance is expected shortly.

Cal. Yellow	..... Nominal
Eastern Yellow	.....\$1.50 @ 1.55
Eastern White	..... Nominal
Kaffir	..... 1.50 @ 1.55
Egyptian	..... 1.70

RYE.

This grain remains dull and largely nominal, with prices as before.

Rye, per ctl.\$1.45 @ 1.50
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BEANS.

No very heavy movement has developed as yet, but the market is getting in better shape, with gradually increasing demand for shipment, and it is expected that there will be considerable activity within the next few weeks. The renewed inquiry has given a firmer tone to the market, and higher prices are quoted on pinks and cranberry beans. There is nothing new in limas at present, though everything in this line is firmly held.

(Prices on wharf, San Francisco.)

Bayos, per ctl.	.....\$3.15 @ 3.30
Blackeyes	..... 3.00 @ 3.15
Cranberry Beans	..... 4.25 @ 4.40
Horse Beans	..... 2.25 @ 2.35
Small Whites	..... 4.40 @ 4.50
Large Whites	..... 3.85 @ 4.00
Limas	..... 5.60
Pea	..... Nominal
Pink	..... 3.40 @ 3.50
Red Kidneys	..... 3.75 @ 4.00
Mexican Red	..... 3.90 @ 4.00

SEEDS.

Several lines show more activity than for some time past, though the movement has not yet grown to large proportions. Prices remain steady at the former level.

Alfalfa	..... 16 @ 17 c
Broomcorn seed, per ton	.....\$29.00 @ 30.00
Brown Mustard, per lb.	..... 3½c
Canary	..... 4 @ 4½c
Hemp	..... 3½ @ 4 c
Millet	..... 2½ @ 3 c
Timothy	..... Nominal
Yellow Mustard	..... Nominal

FLOUR.

The local demand is fair for this season, with some little movement in shipping channels. Values are firmly held as for some time past.

Cal. Family Extras	.....\$5.50 @ 5.80
Bakers' Extras	..... 4.60 @ 5.20
Superfine	..... 4.00
Oregon and Washington	..... 4.90

Hay and Feedstuffs.

HAY.

Arrivals of hay in this market for the last week have been nearly double those

of the previous week, and while most of the stock has been absorbed, the market shows a decidedly weaker tone. Quotations stand about as before, but it is doubtful whether top prices can be realized for the next few days. The weakness is due to the rain of the last few days, as the market is very sensitive to changes affecting the outlook and the green feed supply. The rain has been of great benefit, the precipitation being ample in the northern part of the state. Last reports from the San Joaquin and south indicated need of much more moisture, but conditions there are much better than a week ago. The country demand for grain hay has fallen off, though alfalfa is moving well.

No. 1 Wheat, or Wheat and

Oat	.....\$19.00 @ 22.00
do No. 2	..... 16.00 @ 18.50
Lower grades	..... 12.00 @ 15.00
Tame Oats	..... 15.00 @ 20.00
Wild Oats	..... 12.00 @ 17.50
Alfalfa	..... 10.50 @ 14.00
Stock Hay	..... 9.00 @ 10.50
Straw, per bale	..... 35 @ 70c

FEEDSTUFFS.

Notwithstanding a slightly firmer feeling in the whole grains, cracked corn and rolled oats are a little lower, other lines being fairly steady, with a good demand.

Alfalfa Meal, per ton	.....\$18.50 @ 19.00
Bran, per ton	..... 25.00 @ 26.00
Oil-cake Meal	..... 40.00 @ 41.00
Cocoonut Cake or Meal	..... Nominal
Cracked Corn	..... 35.00 @ 36.00
Middlings	..... 35.00 @ 37.00
Rolled Barley	..... 29.00 @ 30.00
Rolled Oats	..... 37.00 @ 38.00
Shorts	..... 29.00 @ 30.00

Garden Truck.

VEGETABLES.

The market is still somewhat unsettled by the frost damage, and some lines are still out of the market, though most descriptions are again coming in fairly well. Prices, however, continue on a rather high level. String beans and summer squash seem to have disappeared for the present, but the damage to the celery crop was greatly overestimated, and with liberal offerings from the river district prices are easier. Tomatoes, also, are lower, with a fairly steady supply from Mexico, while cucumbers are higher. Green peas are in fair supply, but slightly higher than last week, and rhubarb has also been advanced. Egg plant was out of the market for a time, but a little is now offered, bringing rather strong prices. Mushrooms are lower. Onions have been marked up a little, though there is no very large movement.

Onions—

Yellow, ctl.	..... 50 @ 60c
Garlic, per lb.	..... 2 @ 3c
Tomatoes, per crate	..... 65 @ \$1.00
Cucumbers, per doz.	..... 1.00
Cabbage, per ctl.	..... 50c
Carrots, per sack	..... 75c
Cauliflower, per doz.	..... 75 @ 80c
Green Peas, lb.	..... 12 @ 17½
Celery, crate	..... 2.25 @ 3.00
Rhubarb, lb.	..... 5 @ 9c
Artichokes, doz.	..... 75c @ 1.25
Mushrooms, lb.	..... 25 @ 35c
Sprouts, lb.	..... 4 @ 5c
Egg Plant, lb.	..... 12½ @ 15c

POTATOES.

Some excitement was caused by reports of heavy frost damage, but later reports indicate that no very great harm was done, though digging was interrupted for a time. Prices are still considerably higher than last week, but there is already an easier feeling.

River Whites, ctl.	..... 55 @ 75c
Salinas, ctl.	..... \$1.40 @ 1.75
Oregon, ctl.	..... 90 @ 1.00
Sweet Potatoes	..... 1.80 @ 2.00

Dairy Produce.

POULTRY.

Arrivals are still moderate, though larger than last week, and values in general are satisfactory. Fryers and young roosters, however, will no longer bring the fancy figures of a week ago. Dressed turkeys are firm, with a very good demand for this time of year.

Large Broilers, per lb.	..... 23 c
Small Broilers, per lb.	..... 25 c
Fryers, per lb.	..... 20 @ 22 c
Hens, extra, per lb.	..... 16 @ 17 c
Hens, large, per lb.	..... 16 @ 17 c
Small Hens, per lb.	..... 15 @ 16 c
Old Roosters, per lb.	..... 9 @ 10 c
Young Roosters, per lb.	..... 18 @ 22 c
Squabs, per doz.	..... 2.50 @ 3.50

Geese, per pair	..... 1.50 @ 2.00
Ducks, doz.	..... 4.00 @ 6.00
Turkeys, live, old, per lb.	..... 20 c
do young	..... 20 c
do dressed	..... 24 @ 25 c

BUTTER.

The butter market has taken an upward turn again this week, and both extras and firsts are firm at a slight advance, extras being scarce at the moment.

Thurs	Fri	Sat	Mon	Tu	Wed
Extras	33½	33	33	34	34
Firsts	32	32	32	32½	32½

EGGS.

Eggs have been coming in much more freely this week, and with prospects of continued large production purchases are limited to the most pressing needs. Prices have accordingly been dropping quite sharply, the decline for the week in extras being nearly 9c, and 8c for other grades. The market is steady at present, and any further decline may bring a demand for shipment to other points.

Thurs	Fri	Sat	Mon	Tu	Wed
Extras	32	32	30	28	26 23½
Firsts	30	30	29	27	24 22

Selected

Pullets	30	29	27	27	24 22
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CHEESE.

Flats are steady at a slight advance, while Y. A.'s have lost the 1½c gained last week. Monterey cheese has also weakened a little but is fairly steady as quoted.

Fancy California Flats, per lb.	..... 16 c
Firsts	..... 13½c
New Young Americas, fancy	..... 17 c
Monterey or Jack Cheese	..... 17½ @ 18½c

Deciduous Fruits.

Supplies are now limited almost entirely to apples and Winter Nelis pears. The latter have taken a sharp advance, but find no very great demand. Apples have been moving off more freely for the last few days, though trading is somewhat interrupted by the rain. Supplies are still excessive, and it has been impossible to get any advance worth mentioning in prices.

Apples: Fancy Red, box	..... 75c @ 1.25
Red Pearmain	..... 40 @ 60c
Bellefleur	..... 65c @ 1.00
Newtown Pippins	..... 50c @ 1.00
Greenings	..... 60 @ 75c
Common	..... 35 @ 60c
Pears: Winter Nelis	..... 1.75 @ 2.25

Dried Fruits.

The dried fruit business is beginning to show some signs of renewed life, though trading is still by no means active. The only inquiry of any consequence is for prunes, and this is limited almost entirely to the larger sizes, the scarcity of which in all markets has been commented on for some time. The smaller sizes receive little attention and are inclined to weakness, with some operators willing to shade prices. Peaches and apricots are rather firm, the latter being very scarce, though the demand is not very large. Many conflicting estimates are being circulated as to the position of the raisin market, local packers holding that there is still a large supply in the state, while fall shipments were unusually large. Some Fresno interests claim that shipments were no larger than in 1911. Prices on all lines stand as before. The New York Journal of Commerce says:

"While the demand for all California fruits on the spot, especially prunes, is seasonably slow, a little more interest is said by brokers to be shown in offerings of forward shipment from the Coast. The interest in prunes seems to center entirely in the larger sizes, and a number of inquiries for straight carload lots have been put up to the Coast without resulting in business, for the reason that 40s are not to be had except in restricted quantities in combination with other sizes, while 30s are hardly obtainable, even in assortments.

"More interest is said by some brokers to be shown in California Sultana raisins both here and for shipment from the Coast, but the tone of the market remains easy on the basis of 5½c ex store and 4½ to 4¾c f.o.b. steamer, according to holder. Thompson's Seedless are held firmly at 6c f.o.b. Coast, but no business of consequence in them was reported yesterday. Loose and seedless Muscatels seem to be the subject of little attention from buyers, but in the absence of pressure to sell prices are maintained on the basis of previous quotations."

(New crop.)

Evap. Apples, per lb. 4½ @ 5 c
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Apricots 9 @ 10 c
Figs: White 4½c
Black 3 c
Callmyrna 4 @ 5 c
Prunes: 4-size basis 3 @ 3½c
(Premium: 1c for 40s-50s; 2c for 30s-40s.)	
Peaches	..... 4¼ @ 4½c
Pears	..... 4 @ 7 c
Raisins—	
Loose Muscatels in sweatbox	..... 2¼ @ 2½c
Thompson's Seedless	..... 4½c
Seedless Sultanas	..... 3 @ 3½c

Citrus Fruits.

The orange and lemon market is higher on good fruit, caused by the loss of a large portion of the crop in the great freeze that visited California last week. While in many sections but little damage was felt, yet in others nearly the whole crop will be a loss. The result will be higher prices for the good fruit, provided frosted oranges are not shipped to depress the market.

In the East the auction markets are but fair, owing to considerable poor fruit offered. At New York on Monday, January 13, prices averaged from \$4.45 down to \$1.80 per box for California navels, while Arizona half boxes sold for \$3.45. Lemons averaged \$3.25 to \$3.90 per box.

At Philadelphia the same day California navels brought \$1.65 and up to \$3.20 per box, while Florida oranges sold for fair prices. Other auction points were about the same as New York, with the exception of Cleveland, where lemons sold up to \$7.30 per box.

About a hundred cars per day of oranges are being shipped from southern California at this time. An effort is being made to get the shippers to pro rate shipments from California and at the same time to secure an emergency freight rate from the railroads. Also growers are trying to get an early ruling from the pure-food authorities upon the question of shipping frosted fruit.

Estimates of the frost damage are still at variance and largely conjectural, but the local market is much better supplied than last week. Arrivals are increasing, and include considerable frost-damaged stock, which is being purchased to some extent and comes in competition with the better grades. Prices for navels have accordingly been reduced, though tangerines and practically all other citrus goods are higher. Grapefruit shows a wide range, and lemons are held at extreme prices, while Mexican limes are about cleaned up at the moment.

Oranges, per box—

Navels, good to fancy	.....\$1.25 @ 3.25
Frosted	..... 1.00 @ 1.50
Tangerines	..... 1.25 @ 2.00
Grapefruit, seedless	..... 2.50 @ 4.50
Lemons: Fancy	..... 6.50 @ 7.00
Choice	..... 4.50 @ 5.50
Standard	..... 3.00 @ 4.00
Limes	..... Nominal

Nuts, Honey, Hops, Etc.

NUTS.

Neither almonds nor walnuts can be purchased in the country, and jobbers are holding their small remaining supplies firmly. In the absence of offerings from first hands, quotations represent values in the local trade.

Almonds—

Nonpareils	..... 17½c
I X L	..... 16½c
Ne Plus Ultra	..... 15½c
Drakes	..... 12½c
Languedoc	..... 11½c
Hardshells	..... 8 c

Walnuts, 1912 crop—

Softshell No. 1	..... 16 @ 16½c
Hardshell No. 1	..... 15 @ 15½c
No. 2	..... 10½c
Budded	..... 17 c

HONEY.

The local market is dull and featureless at present, supplies being fairly large but steadily held at the prices quoted.

Comb, white	..... 12½ @ 14½c
Amber	..... 10 @ 12 c
Dark	..... 9 @ 10 c
Extracted, white (new)	..... 3 @ 9 c
Amber	..... 6 @ 6½c
Off Grades	..... 5 @ 6 c

BEEWAX.

There is no inquiry for shipment at present, and the small local requirements are amply supplied. Values are unchanged.

Light	..... 29 @ 30 c
Dark	..... 25 @ 26 c

HOPS.

Trading is still quite active in some parts of the State, and stock is getting

well cleaned out of first hands. Prices, especially on the more desirable grades, have been marked up.

1912 crop10¼@20 c
WOOL.

There is no trading of any consequence in this market, and prices are almost entirely nominal, though supplies appear to be fairly well sold out.

Fall Clip:

Northern and free Mendo-
cino12 @14 c
Lambs 9 @13 c
San Joaquin and Southern. 6 @10 c
Mohair15 @28 c

HORSES.

This week the first large sales of the year are being held, several large lots of drafters and all-purpose horses having arrived from eastern and southern Oregon. Such stock in general is bringing good prices, in some cases selling slightly higher than a year ago, though some offerings of nondescript and ordinary stock find only a moderate demand. Drafters, as usual, have had the greatest demand, but all first-class young horses are expected to find ready sale.

Heavy drafters, 1700 lbs. and over\$300@350
Light Drafters, 1500 to 1650... 225@250
Chunks, 1350 to 1500 lbs.....\$180@220
Wagon Horses, 1250 to 1350 lbs 150@180
Delivery Horses, 1050 to 1250... 110@125
Desirable Farm Mares..... 100@125

MULES.

1200 lbs.\$200@250
900 lbs. 75@125
1100 lbs. 175@200
1000 lbs. 125@175

Live Stock.

Prices in all lines are firmly held at the recent advance, and some further advance is expected in beef, offerings being very light.

Steers: No. 1 7 @ 7¼c
No. 2 6¼ @ 6¾c
Cows and Heifers: No. 1.... 6 @ 6¼c
No. 2 5¼ @ 5¾c
Bulls and Stags 2 @ 4 c
Calves: Light 7¼c
Medium 6¾c
Heavy 5 @ 6 c
Hogs: Grain-fed, heavy.... 6¾c
150 to 250 lbs..... 7 c
100 to 150 lbs..... 6¾c
Prime Wethers 5 @ 5¼c
Ewes 4 @ 4¼c
Lambs 6 @ 6¼c

DRESSED MEATS.

Steers 11 @11¼c...
Cows 10½@11 c
Heifers 11 c
Veal, large 10 @11 c
Small 12 @13 c
Mutton: Wethers 10 @10½c
Ewes 9¼@10 c
Spring Lambs 12 @13 c
Hogs, dressed 11 @12 c

HIDES.

Values remain as before, with little indications of easiness, though there is very little movement at present.

Heavy Steers, over 56 lbs. 14¼c
Medium 14 c
Light Steers, under 48 lbs. 13 @14 c
Heavy Cows, over 50 lbs.. 13 @14 c
Light Cows, 30 to 50 lbs.. 12¼c
Kip 15 @16 c
Veal 18 @19 c
Calf 18 @19 c

Dry—
Dry Hides 23½@24¼c
Dry Bulls 19¼c
Dry Kip, 10 to 15..... 24½@25¼c
Dry Veal, 5 to 10..... 29¼c
Dry Calf, 7 down..... 29¼c

Sheep Skins—
Long Wools\$ 0.85@ 1.25
Medium Wool, 6 to 9 mos.. 60@ 90c
Short Wool, 3 to 6 mos... 40@ 60c
Lambs 35@ 70c

A. Griffin, former engineer of the Modesto Irrigation District, has been employed by the U. S. Reclamation Service and will be district manager of the Truckee-Carson ditch in Nevada.

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The time for the distribution of the Ettersburg strawberry plants has expired and we are now making up the shipping tags to send to Mr. Etter, who will send them out. That no one entitled to them be missed, we would ask that if you have requested them and don't receive them by February 5, you send us a card at that time, and we will send out tracers.

Never in the forty and more years that have elapsed since the establishment of the PACIFIC RURAL PRESS has the advertising in its columns been so heavy as this season. We again wish to urge our readers to read the ads in this paper. It will pay you as well as our advertisers.

At this time of the year, when the greatest number of renewal subscriptions are being received, we naturally get more criticisms of the PACIFIC RURAL PRESS than is usual. Since increasing the number of pages to thirty-two weekly, we have been getting perhaps more than the usual number of letters containing friendly and appreciative criticism. Following are several extracts from letters received this week, and while "taffy" does not pay grocer's bills, yet it helps to sweeten our daily work, and we are human enough to appreciate them.

One subscriber says: "In one matter alone we profited \$90 by your paper."

Another one says: "The RURAL PRESS gets better and better every year, and there is never a month that I don't get twenty times the value of my annual subscription."

Another writes: "I have retired from active farming after 44 years, but a farmers' journal like the PACIFIC RURAL PRESS, becoming more and more interesting, working honestly and vigorously for the benefit of the farmer, we are in duty bound to support."

An old subscriber writes: "I think this is the forty-second time I have sent in my renewal, and during all these years have read and appreciated its practical suggestions."

Consul Albert Halstead, Birmingham, England, reports that the change from the horse omnibus to the motor bus is progressing so rapidly that it is expected in six months there will not be a single horse omnibus remaining on the streets of Birmingham. The horses are being sold, and, what might seem surprising, are bringing good prices; sometimes as high as \$200, while the average is \$143. A good demand for horses exists at present, there being somewhat of a shortage because fewer are being bred. Breeders have felt that it was rather risky, in the changing conditions of transport, to breed many horses, with a resulting shortage in young stock and an increase in the demand and prices for older animals.

HERE'S A WAY TO

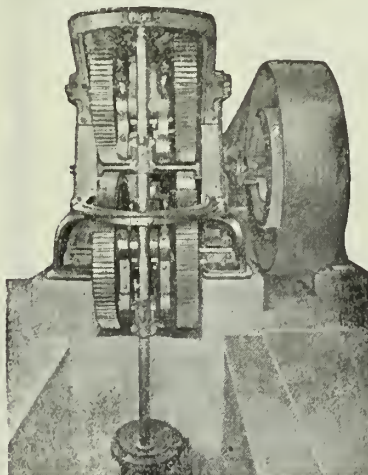
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THE SUPERIOR 20 X 4 SPECIAL ALFALFA AND GRASS SEED DRILL

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INCREASES YIELDS OF WINTER WHEAT BY
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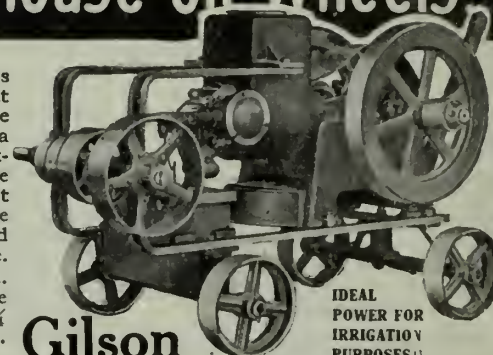
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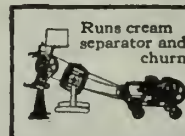
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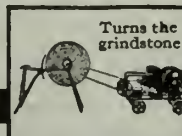
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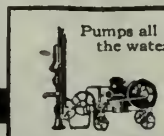
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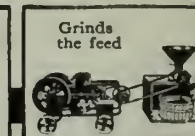
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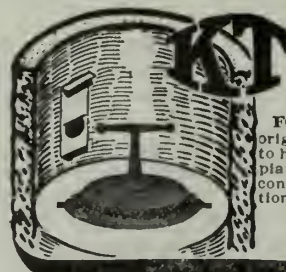
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THE PACIFIC RURAL PRESS

Vol. LXXXV. No. 4.

SAN FRANCISCO, SATURDAY, JANUARY 25, 1913.

Forty-Third Year.

THE OLIVE: OLD AND NEW.

As all our horticultural readers know, the olive in California has for several years been renewing its hold upon confidence, and is now one of the most popular lines of enterprise and investment. It is a recovery, and care must be taken that it does not also become a recrudescence. The olive was advanced to popularity in this State about a third of a century ago upon a perfectly safe and sane basis, viz.: a century of successful experience at the missions. It was upon that foundation that the pioneers of our new horticultural era planted olives in a small way in different parts of the State, and it was the demonstration at the missions which led Elwood Cooper to first apply the American idea of enterprise to the olive, both in large planting and in commercial development of the product. Mr. Cooper's lead was accepted by others, and if they had been content to adhere more closely to the original plan to plant the olive variety which has been proven to do well, our horticultural history would have escaped many losses and disappointments. It was certainly a mistake to promote planting everywhere on the claim that the olive would be successful where no other fruit tree would do well. It was apparently a mistake also to place so much reliance upon a score or more of varieties gathered in the Mediterranean countries and to plant them largely before their local bearing behavior, and before definite suitability for successful local uses, had been demonstrated. This seems to be wisdom born of experience, and, of course, we are citing the lessons without any criticism of those who worked so enterprisingly and eagerly and lost so much, that olive growers of the present day may see a better way. They thought they were doing well; they proposed to have all the waste places in California flowing with olive oil; they dreamed of desert sands covered with most wholesome fruit. It was a misfortune that so many of their plant-

ings did not long change the hues of desert vegetation and that their trees, planted in better places, yielded so much firewood. It is an interesting horticultural fact, however, that it now appears as though the State would be better off if there had never been another olive brought to the State after the mission introduction of seed or cuttings, as the case may be, for we have lost more than has been gained by later importations, and if the planting of the Mission variety alone had been pursued largely wherever previous small plantings made good, we should now have a more adequate supply of the olives which our present ways of handling seem to call for as most suitable; we would also have less olive firewood. There seems to be a close analogy between the olive and several other fruits: in each, some one variety leads and others follow at remote distance. The Mission to the olive is as the navel to the orange, the Eureka to the lemon, the French to the prune, the Bartlett to the pear, the Royal Ann to the cherry, the Royal to the apricot—though in other fruits, like the apple and the peach, there is no such concentration of



Olive Trees in Palestine Many Centuries Old.



A California Olive Orchard of Today.

both cultural and commercial satisfaction on single varieties.

We are citing this view not as in any way broad or final. It seems to be one of the phases of olive history in California that a variety which came probably by chance, for the padres cannot be credited with much insight or foresight in their fruit growing, should prove to be, after all the vicissitudes of pure-food laws, oil-making and pickling processes, the most satisfactory of all to our large scale buyers and be a top-notch in

their price list. It really looks as though it would be a proper proceeding for the new race of olive growers, who may be getting \$120 per ton for ripe Mission olives, to organize a pilgrimage and prostrate themselves in the dust beneath the original tree, which probably still stands at the old San Diego mission, and humbly beseech the spirit of Junipero Serra to forgive them for their long inappreciation of his service to the State.

(Continued on Page 105.)

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CALIFORNIA WEATHER RECORD.

The following rainfall and temperature record is furnished the PACIFIC RURAL PRESS by the United States Department of Agriculture, Weather Bureau, at San Francisco, for the week ending at 5 P.M., January 21, 1913:

Stations.	Rainfall Data.			Temperature Data.	
	Past Week.	Seasonal to Date.	Normal to Date.	Maximum.	Minimum.
Eureka	2.68	24.52	22.08	52	32
Red Bluff	1.98	13.09	12.72	52	32
Sacramento	1.94	5.26	9.45	56	36
San Francisco	2.02	8.72	11.04	64	40
San Jose	1.60	3.90	8.01	56	28
Fresno .....	.83	2.52	4.71	56	32
Independence .....	.22	.92	4.64	50	10
San Luis Obispo	2.30	4.57	9.11	62	34
Los Angeles	1.26	2.90	6.94	64	46
San Diego .....	.36	2.88	4.58	64	42

The Week.

And so perhaps it was hardly necessary for us to go into such elaborate analysis of the effects which we noted last week, of a variation of 16° Fahr. upon citrus trees. The observations are not questioned, but the effects appear to be irrelevant and immaterial because, according to popular report, there were no effects to be so conscientious about. All around the grand ellipse of the great interior valley of California well matured citrus trees took what was coming to them without complaint or subsequent suffering. Even where oranges mature later in the winter and where, therefore, considerable losses of fruit have been experienced, the point of measured injury is based upon exceptional progress toward maturity this year, as may be seen in the interesting statement of Mr. Adamson upon another page of this issue. It is also important to cite Mr. Adamson's preliminary review of the efficacy of frost fighting. He had, we understand, considerable responsibility in leading the frost-firing of his neighborhood and therefore knows widely what was done. He is clearly of the opinion that a good big pot of oil is a better surety of safety than a reputation for salubrity, and those who occupied "frostless" places suffered most because they fought not and because, like the foolish virgins of the parable, they had no oil in their lamps. We have heard of similar experience in other districts and so enthusiastic is one large grower, who lost his fruit in places "which did not need protection" and saved 85% of it in his protected places, that he resolves for the future to have not only larger pots but a 5-gallon can of reserve oil under every tree on his place. This is, of course, a preliminary statement; it will take some time to gather exact facts concerning frost-firing on the whole, but on the face of it, at this time, it certainly looks as though the California conception of the feasibility of heating all out-of-doors is one of the most valuable contributions California has made to the semi-tropical fruit growing of the world.

There Will Be Citrus Fruits to Sell.

Another significant declaration of the week is that losses of citrus fruits in this State, though grievous in places, are not nearly so great on the whole as has been announced. The ordinary newspapers, whose hair-trigger convictions rush them from perdition to paradise for the entertainment of people who enjoy thrills, are now swearing, by their leathery consciences, that citrus fruits were injured little, if at all. After stultifying the State by their cries of relief for impoverished citrus growers, they are now gathering tribute from the districts which they impeached to pay them for retracting their calumnies. They are a fine race of birds: they first croak like ravens and then burst forth canary-melodies. It would, of course, not be up-to-date journalism to wait for the truth; it is better to lie hard on one side and then lie hard on the other and thus produce thrills going and coming. Of course California will have a good deal of citrus fruit to ship this year and every year, until a certain place of undetermined high temperature freezes over, and it would have been more reasonable to emphasize this fact while the freeze was on than to prophesy ruin as was too freely done. On the whole, California will get much money from citrus fruits this year, and prices are likely to partly compensate for quantity in the season's shipments, unless the gallery-playing economists at Washington should carry out their threat to uncover our industries to competition from cheap labor countries.

Citrus Temperatures Lowest at Washington.

After all, according to current telegraphed reports, California semi-tropical fruits are encountering a lower temperature in Washington than in any citrus belt in this State, and seem likely to be proportionally injured thereby. The American lawyers hired by the representatives of the Sicilian industry are swelling with patriotic emotion as they contend that Americans should be protected from Americans by invoking the help of those great apostles of altruism, the Italians. In the case of the lemon there are two great producing regions, California and Sicily, and in the nature of things there are two monopolies, or a duopoly, if you desire to be exactly right in expression. Experience has shown that when there was really a monopoly, before California developed her lemon product, the importers took every cent the American would pay for a lemon and they are not to be blamed for that, because they had not then learned to be protectors of the American people. It is only now after the California product has lowered prices all through the West—in fact, everywhere except upon the Atlantic seaboard, perhaps—that the importers have found it necessary to assume a patriotic protectorate of Americans in the hope of regaining their old supremacy of the Italian product, which, by the killing of California production, would enable them to get all the money they could without competition. It is a queer argument, of course: it is a queer protector who seeks a chance to plunder, but they are the only argument and attitude which we can make out of the representations which the attorneys for the importers are now making at Washington, in the hope that the incoming Congress will put their beautiful scheme in operation. Such a situation ought not to be allowed to exist. It should be remembered that the West, which particularly desires the California lemon, is not the West of two decades ago when the Italians had their own way. Population has vastly increased, and the use of lemons has more than proportionately advanced. The lemon figures in cookery as never before, and is

not now a matter of a little lemon peel in a tubful of dried-apple sauce, as formerly. The lemon also cuts a larger figure in beverages and is the great consolation of those whom recent legislation has denied accustomed alcoholic imbibation. To think that these progressive movements should be placed at the mercy of the Sicilians should be revolting to the American mind. Besides, all that Sicily can produce should be consumed in Europe, and would be if the lemon should be treated as a food supply there, as it is in the United States. The north European governments persist in regarding the lemon as a luxury, and tax it for revenue, so only the rich can afford to buy it. Now if the Sicilians really desire to operate altruistically in the world's affairs, they ought to insist upon having a free lemon in Europe and not be wasting so many crocodile tears over the oppressed people of the United States now in the hope of getting their own squeezer at work later.

Rural Work for Women.

We wonder how much confusion is now flowing from efforts to legislate for agriculture from an urban point of view. The ruck resulting from accident-liability legislation seems to be clearly of that origin. The issues over the game laws, concerning which there is something forcible on another page of this issue, have apparently come from the town-man's ignorance of the relation of wild life to the farmer's efforts at production. And now comes again that legislation of 1911 which declared that a woman must not work more than eight hours a day—just about the same time, you will remember, that laws and constitutional amendments declared that a woman could do anything a man could, and then some. Well, then came also that restriction upon the hours of women's work which may, so far as we know, be beneficent from an urban point of view: that is involving stress of environment, attitude and all that. We protested at the time that the requirement is wholly unreasonable, not alone to the rural employer, but to the operative as well, because it limited earnings without reason and because it involved physical exercise under conditions which made for health and strength in marked contrast to ordinary indoor occupations of women. One could easily foresee that the women who want money from work with fruits and the growers who desire to reward them not by the hour but "by the piece" would come forward to prevent an extension of the eight-hour law to their rural work, and it therefore appears in the legislature this week. Some very unique and forceful petitions are being presented. For example, the effort at Hanford, where a committee of fruit-growers and cannery operators has been appointed to circulate two petitions, one among the fruit-growers and the other among the women and girls who seek employment during the fruit season. The signature of every fruit-grower and of every woman or girl who obtains a livelihood from the fruit industry will be secured, and with this and resolutions passed by the local civic bodies, the committee will go to the Legislature to urge the defeat of the amendment.

A similar demonstration is expected from the fruit and hop industries at Santa Rosa, and Assemblyman Slater of that district has the matter in hand. He said, in a recent interview: "Such a measure would seriously cripple the fruit industry. When the fruit ripens, it must be handled without delay or else producer and canner suffer heavily. Women and girls employed in the canneries at Santa Rosa and in Sonoma county handle fruit by 'piece work,' and they prefer it for the

reason that they make more money—some of them averaging \$1.50 a day more than they could at a per diem. I can furnish a petition signed by women asking to be allowed to continue to work by the piece when the proper time comes.”

It is enough to make one very impatient to find these thirsty city reformers who may be right enough in their own lines posing as saviors in rural industries which they know nothing of—rescuing women who only ask to have their own way in activities which are exceptionally wholesome and honorable.

Should Know What Agents Are Doing.

It seems to be almost axiomatic that a man should know quickly and accurately what his agents are doing that he may be able to judge whether his interests are being served well or otherwise. This seems to be a very essential and simple requirement of business. And yet such knowledge the farmer has not had from those who receive and sell his products, except in rare instances. He gets statements or he fails to get them, and when he does get them they do not contain the information which will enable him to verify them, unless he undertakes detective duty for which he is usually not qualified. The need of a way by which the consignor of produce shall know whether his business is being honestly done, both in selling and remitting, is generally acknowledged, and there are several propositions before the present Legislature aiming to eliminate dishonesty in various forms from the commission business. We do not know what they all are, but probably some of them are so elaborate in requirements and plan of regulation that they will be found impracticable. One introduced by Senator Birdsall of Placer county strikes us as reaching an essential in the matter which may meet and settle other related matters. According to a published outline, this bill provides that all fruit and produce brokers and commission houses shall, within ten days of the date of sale, make return to the consignor showing the cost and expenses charged against the returns, together with the name and address of the purchaser, the condition in which the shipment was received, and the quantities received and delivered, under penalty of a fine of \$500 for each violation. It provides further that commission houses shall be liable for damages for any loss by reason of delayed account of sales, that the loss a consignor may sustain in comparison with the amount he would have obtained in other markets or from other agencies shall be considered approximate damage from delayed account of sales, and that the measure of damages shall be the difference between the prevailing price in the general market at the time of the receipt of the shipment by the consignee and the price received for such fruit or produce as may be consigned to the delinquent broker between the time the account of sales was due and the time received.

We do not claim to be expert enough to know what difficulties there may be in the way of these requirements as a workable plan. If there are such they should be pointed out by merchants who may be affected, but the essential facts of knowing to whom a consignment was sold as affording a checking possibility and a responsible declaration of dates and conditions—these are the things which a consignor has needed most and enjoyed least. Of course, dishonest men will lie, but one cannot lie long at \$500 per, and the bill makes it possible to count and prove the lies. It will not hurt honest receivers who really do what is expected of them, but it will embarrass men who sell with one hand and buy with the other.

The Universe Does Move.

We have scolded so much this week that it is comforting to be assured that things are moving somewhere. Some really progressive things are doing in the heavens. The Lick Observatory has not figured much of late in popular affairs, but now, according to current reports, it is making reports fit to put the most lethargic under motion. We are assured that the universe in which humanity dwells is half again as large in scale as the world has supposed; that the sun is still youthful, and keeps traveling northerly at the comparatively leisurely pace of twenty miles a second, or only two-thirds the average speed of stars of its own class; that the North Star is not really a single star, but consists of three suns revolving about a common center—that surely ought to keep us all awake until next week.

Queries and Replies.

Querists must submit full names and addresses.

Irrigating Almonds.

To the Editor: The land here, of a gravelly, sandy character, produced this year \$100 per acre, while three miles below, on heavier sediment soil, \$160 was the yield of almonds. All trees in full bearing. Would you consider it wise to attempt the irrigation of 20 acres of almonds from a well producing 100 gallons per minute or a steady 3-inch pipe full? What would be the proper system with plenty of fall or slope to the land?—J. L., Arbuckle.

On certain soils in your valley the almond will be rendered more regularly productive by irrigation. Some years on deep retentive soils irrigation will not be at all necessary. In years of short rainfall, however, irrigation may be desirable, even on such deep retentive soils, while on lighter less retentive soils a certain amount of irrigation every year may be desirable. The answer to your question depends upon the season's rainfall, upon the character of the soil and the behavior of the trees, and this must be learned by observation. Certainly such an amount of water as you describe will irrigate a considerable area of almond orchard, because there will never be need for as much water as might be used to advantage on pulpy fruits like the peach, for instance. The way to determine the question is to actually irrigate part of the trees and note any difference in their behavior which may be produced thereby.* The furrow system is best for distribution where the land admits its use.

Increased Fruit by Nitrate Spray.

To the Editor: In a late issue of the PACIFIC RURAL PRESS we noticed an article headed “Nitrate of Soda as a Stimulant to Fruiting,” in which was stated that in the Pajaro valley the orchardists had sprayed some of their trees with nitrate of soda, using one pound to a gallon of water. Do you think it would be advisable to spray almond trees at this time of the year with that kind of a solution? We would like to try it, if it is not too late to do so; the almond buds have just begun to swell. Do you think that the solution would be too strong, one pound to each gallon of water? Don't you think it would be better to make it one-half pound to each gallon of water?—S. A., Chico.

The results reported in the way of increasing fruitfulness by spraying with nitrate of soda are based upon a single experiment and are therefore to be taken simply as suggestive for other experiments. It is not sufficiently demonstrated to warrant adoption as an orchard practice. It would be enterprising for you to spray a part of your trees in the way proposed and note the results. There is no chance of losing anything but the labor, per-

haps, because the nitrate of soda which you supply is useful for fertilizing purposes. What kind of trees will be benefited and how far they will be benefited, if at all, must be determined by much wider experimentation. The spray as used at Watsonville was one pound of nitrate of soda to a gallon of water, and so far as now demonstrated it can be safely applied at any time previous to the opening of the blossoms. If it should take two gallons to spray a tree, the total to the acre would be a minimum application of nitrate as usually prescribed. We see no reason to use a weaker solution.

Pruning Apple Trees.

To the Editor: There is a great difference of opinion here regarding the pruning of three year or older apple trees. Many people cut back three, four and five-year-old trees half the season's growth; others only cut back six inches. I would like to have your advice on the matter.—Beaumont, Riverside county.

Apple trees are cut back during their early life to cause branching and to secure short distances between the larger laterals on the main branches. This secures a lower, stronger tree. Cutting back twice or three times should secure a good framework of this kind, and then the apple should be regularly and systematically cut back as the peach and apricot are. It is not possible to prescribe definite inches for cutting back anything (unless it be the grower's whiskers), because cutting back is a matter of judgment and depends upon how thick the growth is, what its position and relation to other shoots, etc. The chief point in cutting back is to know where you wish the next laterals to come on the shortened shoot, and if you do not wish more laterals at once, do not cut back at all. Treatment of laterals which come of themselves is another matter. We cannot see any reason to clip the ends of shoots unless laterals are desired. If you keep clipping the ends of apple twigs, you will get no fruit from some varieties.

Sunburn and Borers.

To the Editor: In your answer to E. C. P. of Forestville in PACIFIC RURAL PRESS of December 21 what you attribute to sunburn is evidently the work of the borer; at least it has all the signs of that pest. I have reason to know, as I have been somewhat troubled with it during the last year or two on my young apple trees—James Boyd, Riverside.

Yes; sunburn and borers are usually associated, but sunburn is the prime factor, for if you can keep the bark from sunburn, you will have no borers—that is of the flat-head type which is most common in this State. The peach-root borer does not wait for sunburn, but if the flat-head gets into a tree, even those which the peach-root borer also infests, the sun gets a lick at the bark first.

Pruning Old Vines.

To the Editor: I have some muscat grape vines thirty years old. Can I chop off most of the old wood with a hatchet and thereby bring them back to proper bearing?—Subscriber, Sacramento.

Not with a hatchet. If the vines are worth keeping at all, they are worth careful cutting with a saw and a painting of all cuts in large old wood. If the vines have been neglected, you can saw away surplus prongs or spurs, reserving four or five of the best placed and most vigorous, and cut back the canes of last summer's growth to one, two or three buds, according to the strength of the canes—the thicker the canes, the more buds to be kept. It is not desirable to cut away an old vine to get a new start from the ground, unless you wish to graft. Shape the top of the vine as well as you can by saving the best of the old growth.

Horticultural Enactments and the Business.

[By GEORGE C. ROEDING, at the Fruit-Growers' Convention at Fresno.]

Our laws, as I understand them, are created for the purpose of doing the most good to the greatest number of our people and are not enacted for the benefit or the injury of any of our citizens in the legitimate pursuance of their vocation.

It must be admitted that a business is developed as a result of certain demands which may exist in a community, or as a result of the exigencies of trade which may cause that business to cover a wide scope of territory.

A man engaged in business endeavors to exert his powers and his intelligence to keep abreast of the times and be in touch with those who desire to purchase the product which he may manufacture or produce.

I am going to speak of California first, in the discussion of this subject, for if there is any one State in the Union in which our horticultural development has surpassed in its extent and along modern and progressive lines, it is this most resourceful State of ours. It is due to the intelligence of a certain class of men that these remarkable strides have been made, and I do not think I am making any grave exaggeration when I say that our nurserymen are largely responsible for placing the fruit business on the high plane on which it stands today. It is through their foresight and their realization of what could be accomplished that they have introduced so many valuable fruits, and ornamental trees and shrubs, which has placed California in a class by itself.

The burning question which arises in their minds now is, shall they go on putting forth the best that is in them to supply fruits; finer and a greater variety of ornamental trees and plants; or will they quit altogether and engage in other pursuits from which they can derive a living without being constantly harassed by laws, whose main purport seems to be to throttle them.

It is useless to deny that this is the condition of affairs as they exist today, and with every succeeding year they are becoming more drastic in their application.

Every railroad company and every citizen of this State foresees the great possibilities that lie before us and in attracting immigration to this Coast, it is done with the purpose of inducing settlers to buy small tracts of land and develop them, more so in horticultural products than in any other one thing.

Those who have been merely casual observers are impressed with the fact that our development in horticulture is still in its infancy, and that there are great possibilities before us. There are thousands of acres of land in this State open for development and the strides which are being made in the hydro-electric power and in our irrigation systems will eventually bring many of these lands into a high and intensive state of cultivation.

The advancement of our horticultural interests are dependent without question of doubt on the nurserymen, for they are the only ones who are going to make an effort to introduce new fruits and plants, and propagate them for sale. It is not necessary for me to dwell very much on this subject, for you to understand that the business must bring adequate returns or it cannot exist.

It is not going to be my purpose to discuss radical changes in our laws to correct existing evils, in this paper, but rather the application of these laws. This is not an admission that our laws as now administered are satisfactory to the nurserymen of this State, because they are not and although I am decidedly in favor of having them under State control and so far as it is possible to do so, to have them uniform, this in itself will not correct conditions entirely, for there will always be more or less conflict.

There is no one who will not concede that a

nursery business requires the closest application and the most intelligent effort to succeed; then why should it not be accorded the same treatment on the part of our horticultural commissioners as any other branch of the fruit business. The aim of our commissioners seems to be directed solely at the nurserymen and they are forced to believe that they are the "goats" for every new law and ordinance that is enacted.

It costs money to raise trees and this in connection with the fact that trees must be grown and started several years in advance of their sale, the nurserymen being compelled to anticipate what the call will be for, increases the cost of his trees to a still greater degree on account of those which must be burned because as it often happens they are not in demand. A nurseryman for his own good, wants to keep his stock clean and free of pests and there is no reason for holding up and condemning his stock because an insect or disease may be found on a few of his trees than there would be for holding up a shipment of fruit for the same cause. Counties are drawing lines of demarcation prohibiting the shipment of certain classes of nursery stock between them, without inspection; still there is just as much chance and even more so, in carrying pests on the fruits which pass through on the railroad trains between these counties and no effort is made towards inspecting this fruit and even if an occasional pest was found on it, it would not be condemned for shipment.

Dealing With Pests.—The nurserymen of California are expected to furnish trees true to name, and in order to supply such stock it is necessary to cut their buds from bearing trees and preferably such trees in an orchard which produces an abundance of fruit of the very best quality. How many of such orchards are there which do not have pests? Even after fumigating and washing the bud sticks, a pest may get established in a nursery in spite of all the precautions that may be exercised to prevent it. Is it right or just that the entire nursery should be condemned for this reason?

The nurserymen are constantly moving their nurseries to new locations, trying as far as possible to get as far away from orchard districts as they can. They seek the very best land in such places with no other purpose in view than to grow the best of stock and satisfy the demands of their own conscience and their customers, to supply high grade stock.

These are facts which can not be controverted. Why is it then that a nurseryman's stock is held up and whole carloads condemned because a few trees may be found to be diseased? Travel from one end of this State to the other and there is not a single locality in which fruit growing is carried on in which pests and diseases will not be found. I do not think any horticultural commissioner wilfully wants to ruin the business of any nurseryman, but this is what he does, when he gives newspaper publicity to the fact that he found certain pests on a shipment of nursery stock, and even goes so far as to prohibit the shipment of other classes of stock which have never been known to be attacked by this pest.

Harmony Desired.—The horticultural commissioners and nurserymen should work in harmony to hold pests in check, for it is only by following some such plan as this that the nurseries of California can continue to remain in business. There is not a nursery of any consequence that has not pests and diseases to contend with, and if every intelligent effort is being made to hold these diseases in check, drastic ordinances aimed principally at the nursery interests should not be enforced without very careful consideration. A continuance of the course which is now being followed throughout the State, will result ultimately in the extermination of the nursery business entirely, which today bears a very important part in the up-building of our horticultural interests.

A few words relative to interstate shipments: California is fencing herself in against the shipment of all classes of nursery stock from a group of the Southern States on account of the white fly and now Arizona takes a step in the same direction by prohibiting entry of citrus trees and grape vines from California except from certain counties and districts which are supposedly free from the pests mentioned in the quarantine order. Apparently no thought is given to the nurserymen who may have stock growing in these districts. With the stroke of a pen they are preemptorily prevented from carrying on their business, because their nurseries happen to be within the restricted area.

Counties Are Favored.—Why should we be singled out? Why does not the State commissioner of Arizona prohibit the shipment of California fruit into Arizona except from the favored counties; giving as one of his reasons for this drastic and unreasonable law that Arizona had sufficient fruit of its own to meet its demands and did not need the California product? This is the argument he uses against our citrus nursery stock. Why does our State Commissioner of Horticulture make this law so sweeping in its effect against all classes of nursery stock which the white fly does not attack, when there is just as much possibility of the white fly being introduced in some other article of commerce as there is on certain classes of nursery stock which the white fly does not attack?

Is it any wonder that nurserymen are driven to exasperation and are inclined to bid defiance to the many unjust and admittedly illegal ordinances that exist in this State, preventing them from making shipments of certain classes of nursery stock absolutely, and without inspection. We do not ask for anything, except that which we are in all justice entitled to. We want inspection and not general condemnation. We want to be accorded the same courtesies that would be extended to others engaged in horticultural work.

A new pest, the alfalfa weevil, is doing an immense amount of damage to the alfalfa fields of Utah and adjoining states. This pest would be a serious menace to the alfalfa fields of California, and every precaution should be exercised to prevent its introduction. A movement is already on foot, so I have been given to understand, which has for its sole purpose the prevention of the shipment of nursery stock from Utah. Can any one explain why this is the case? Does this insect infest fruit trees? If there is no proof that it does, why place this one product in the condemned class? There would be far more reason for prohibiting the movement of trains used for passenger traffic and freight service, which pass through the infested section from being allowed to come into California, as there is for making nursery stock bear the responsibilities for the conveying of this pest.

In conclusion allow me to say that the nurserymen are deserving of just as much consideration as any other branch of our horticultural interests and it is high time that the tendency to make them the butt for every new regulation pertaining to the shipment of stock between states and counties, should not be so framed as to make them bear all the burdens for every new pest which springs into existence, and threatens our horticultural interests.

THE FREEZE AND THE FIG WASP.

Before the cold spell came on a subscriber wrote in as follows:

"To the Editor: Will you kindly inform me if I have to get the fig wasps again next year. I got them in this year and my figs did real well for young trees. They are the Smyrna, or as some call them, Calimyrna. There are a few wild fig trees in the orchard."—J. A. C. Denair.

In ordinary seasons it should not be necessary to get any fig wasps, blastophaga, to make the Smyrna figs set fruit provided you have the wild or capri trees of the right kinds in your orchard and the wasp has once been established. In a normal year there are three crops of capri figs. The mature wasps come out of the figs of one crop and lay eggs in the young figs of the new

crop. There should therefore be figs on all the trees all the year, and either wasps or eggs that would become wasps in them.

Oecasionally, however, frosts kill off all the wild figs in winter and then when a new crop comes on there are no wasps to go into them, and wasps have to be secured from elsewhere. A person may be quite sure that there are wasps in his capri figs, if the figs stay on during the winter. If the frosts remove the figs, he can be quite sure there are no wasps left. To assure himself that there are wasps in the figs a grower can cut a fig open and find wasps in the galls, or enlarged seed shells. Capri trees that will hold figs through quite severe frosts can be secured and covering with burlap or smudging will further ensure that the figs will stay.

This late freeze probably has wiped out nearly every capri fig in the big valley, together with the

wasps they contained. While the above correspondent may have wasps when he wrote, he probably has not now. To see that the wasps get in his new crop of capri figs, provided any are left, it will be advisable to get sound figs from somewhere. One or two figs per capri tree will do.

If any of these figs are available they can be secured from G. P. Rixford, 1813 Pierce St., San Francisco, who is in charge of the fig operations in California for the U. S. Department of Agriculture. Every Smyrna fig grower in California, if he hopes to have a Smyrna fig on his orchard this year, should investigate at once to see if he has any capri figs left on his trees, and if not, should communicate with Mr. Rixford or some one that has surplus capri figs in order to get a couple of figs for each tree when the new crop figs are ready for the wasps.

Overhead Irrigation and Frost.

Last summer we had a description of the overhead irrigation system installed by Robert Baird, Porterville. Since the cold spell came along we wrote to Mr. Baird asking what the effects of overhead irrigation had been as a protection against the frost, also requesting a little information concerning other effects. Mr. Baird reports that for irrigation the system has been a success, but requests that we do not publish the results until after several years' experience prove how much it is actually worth.

We trust that he will pardon us for not complying with the request, as this is a matter of great interest to growers and a couple of years' time is worth a good deal. It will, therefore, be understood that until further trial the results will be only partly conclusive.

The letter states in part: "On the irrigated part of the ranch under the old or furrow system the crop harvested in November was very light, less than half of last year, consequently the fruit was excessively large and oversized for regular packing. (This was rather general in the district and an exceptional occurrence.—Ed.) On the other hand, under the overhead system, a normal crop set and sizes were smaller and ripened up more evenly and prices realized for this crop are better so far, as returns are only coming in now."

Frost Protection.—"As to frost protection, the fruit was off before the heavy freeze came, but I did try the overhead system for one night on twenty acres. The result in the morning was the greatest crop of icicles you ever saw, and had the weight of fruit been added to weight of icicles, I am afraid it would have destroyed many of the trees.

"We are today washing out the nozzle or pipe lines and find quite a number of pipes bursted, also over a dozen so far of gate valves out of commission by the frost and we are only about half through yet. Consequently, as previously remarked, any report for publication on the system at this time would be premature."

The thrips appeared to do less injury than usual, though Mr. Baird does not care to attribute this to the overhead irrigation. The June drop, as we previously stated, was due to several hot days following a cold spell. The drop was partially prevented by the cooling of the air by the spray, and this was largely the cause of the heavier yield where overhead irrigation was practiced.

Water and a Freeze.—A little data on the way an overhead system of irrigation might protect from frost would not be amiss here. With such a system of overhead irrigation as is installed on his grove one inch of water can be applied to the soil in about nine hours. A cubic foot of water weighs 62.3 pounds, making an inch of water on a square foot weight a little more than five pounds. Upon the 43,560 square feet of an acre here would, therefore, be applied in the nine hours' fight against frost about 220,000 pounds of water.

Before this could cool from 50° F. to 32° and then freeze it would give off enough heat to raise 4,000,000 pounds of water one degree in temperature. One gallon of oil in burning will raise 8,000 pounds of water one degree, provided the

combustion is complete and heat all utilized, as it never is, which would make the inch of water have a heating value equal to about 2,000 gallons of oil per acre, or twenty gallons of oil to the tree, enough to rout any frost that would dare invade a California citrus grove.

The spray should keep the air through which it fell at 32° or freeze in the attempt, and until it did freeze the temperature could not fall much lower. Then if the critical temperature were a degree or so below freezing the trees would be safe. No heat except that which sank into the ground would be lost and as soon as a coating of ice formed on the ground, as would be the case in the freeze of a generation, like the recent freeze, it would keep the latent heat of the rest of the water where it would do the most good.

Operating Methods.—Readers will notice the possible trouble from ice on the trees and the actual trouble from the bursting of the pipes. A small coating of ice would be a slight protection from the frost, at thawing out time. We should think, since the spray under this system could be directed as wished, that only a small amount of water might be put on the trees and the rest sent between them, where it would ward off enough cold to be effective through the grove.

We should think that if the water could be kept moving that freezing would be prevented in the pipes. At any rate, better lose a pipe than a crop of oranges.

As a frost fighting proposition for an exceptional freeze it appears from the above experience that this system of having a pipe run down a row would be superior to having a standpipe with a nozzle run up through each tree, as in the latter case there would be no way to keep the icicles from forming and possibly breaking the trees.—D. J. W.

BAROMETER BEST FROST PROPHET.

To the Editor: In regard to frost protection there is one thing in the article by your Associate Editor on Factors for Frost Fighting that was not mentioned, and that is a good barometer. Now, in my 40 years experience in Riverside I find there has never been a killing frost here with an extremely high barometer, indicating a very dry atmosphere, which as we all know is favorable to heat radiation.

Every farmer ought to have a barometer, for a practiced reader of it can almost to a certainty predict the weather in advance, better in fact locally than any reports from the weather bureau in case of threatened frost. Again in threatening weather, the barometer will warn you in time enough to make preparations for rain. My barometer has been invaluable to me this year, for when my neighbors were lighting fire pots I have not done anything, confident in the readings of my barometer.

Running water is my basis of protection. With water at 60 degrees running in the orchard it takes a very hard freeze to do any damage. So far this season there is no damage except perhaps in very exposed places. Thirty degrees is the lowest so far with me and oranges when ripe will stand 22 degrees for a short time without

any appreciable injury. It is improbable that there will be any damage after this date, for there has never heretofore been a killing frost after this time. Some damage has been sustained by the continued high winds in exposed orchards.—James Boyd, Riverside, December 30, 1912.

Observations like these are of the utmost interest and value. Smudging would be practiced much more extensively if the fruit grower knew he would not be likely to burn lots of unnecessary oil.

The barometer is about as simple and inexpensive an appliance as could be used, and with results like the above, its use ought to be more than worth while. It might be stated, if any of our readers are not familiar with the uses of a barometer that a high barometric reading is not dependent upon the amount of moisture in the air, but by the atmospheric pressure. A high barometric reading, however, generally means a dry atmosphere, which encourages loss of heat, as stated above, and makes favorable conditions for frost.

Developments show that one can't always tell just when danger of a killing frost is over, also that frosts may come when the air is moving at a good rate. All the damage in the way of frosts that the citrus men will sustain is probably done, but frosts to worry deciduous men have not started yet.

A barometer or other forecasting equipment, smudge pots, or a supply of irrigating water, ought to be good things to have on hand. The effectiveness of the latter will naturally depend upon the ease and rapidity with which it can be applied. A good deal of heat is given off before water put on at 60° is cooled to 32° and frozen.—D. J. W.

RAISIN ACREAGE SURPRISING.

Surprising facts regarding the raisin acreage of the State have been developed by the work of gathering fruit and vine statistics in the raisin district of the San Joaquin by the California Raisin Exchange, W. R. Nutting, manager. It shows how utterly at sea we are as regards accurate information in production.

By the first of the year there had been mapped thirty-eight townships in the San Joaquin Valley by workers of the Exchange. It had been supposed that there were about 80,000 acres in raisin grapes. In the thirty-eight townships there are in bearing 90,148 acres in muscats, 12,841 acres in Thompsons (Sultanina) and 6,435 acres in Sultanas. Besides these there are 13,018 acres under three years old and 15,615 acres to Malagas and Feherzagos, which may be dried when table grape prices are low, or 138,057 acres in raisin grapes. This acreage does not include anything north of Madera, although there are quite a few seedless raisins produced in the San Joaquin Valley north of this with a possibility of many more. It does not include the raisin districts of Yolo and Sutter counties in the Sacramento Valley, though these cut quite a figure in the seedless market.

Neither does it include any of the districts south of the Tehachapi, nor a number of other townships in the raisin district, notably around Visalia, all of which would probably add ten to fifteen per cent to the above figures.

In other words by taking a careful census it is found that the acreage to raisin grapes is much heavier than any one had suspected. It means that if a good, heavy crop came along the old competitive marketing system would be totally inadequate to handle the goods and the prices, bad enough with a moderate crop, would be ruinous with a full crop. With the goods marketed properly the consuming public could easily take several times what would be a full crop on the total possible acreage. The Raisin Exchange and the California Associated Raisin Company were started none too soon.

Other Crops.—In these thirty-eight townships there are also other table grapes, 3,447 acres and

wine grapes 20,696, making total vineyards of 162,200 acres.

Cling peaches number 4,855 acres and freestones 41,025, with peaches under three years making a total of 53,847. Bearing apricots are on 4,047 acres, non-bearing 1,129; total 5,176.

Other fruits are nectarines, 275 acres; pears, 167; prunes, 2,263; figs, 3,374; plums, 762; olives, 765; nuts, 227; oranges, 4,605; lemons, 401; grape fruit, 105; variety orchard, 2,327; total in all kinds fruit, 236,494.

There are also nurseries, vegetable gardens, etc., 2,616 acres; alfalfa, 90,213 acres; eucalyptus, 1,813; grain, pasture, etc., 524,744, making a total not in fruit of 619,386. Total acreage reported to December 31, 1912, 855,880.

The men who had been collecting statistics are now working for the California Associated Raisin Company, the "Million Dollar Corporation," and further gathering of statistics will be postponed for some time.—D. J. W.

EUCALYPTUS EXPERIMENTS.

Last year we gave a resume of experiments in seasoning eucalyptus, especially the blue gum, and reported that no satisfactory method had been secured for seasoning ordinary blue gum trees to make them useful for anything but firewood. These investigations have been continued with no more success. A new method, however, is being tried which consists in girdling the tree so that it will dry out slowly while standing. When thoroughly dry the trees will be cut down and sawed up. Apparently this will prevent warping absolutely. It also will prevent big checks from forming, but whether it will stop the small checks from coming all through the wood remains to be seen. Unless it does it seems that the only way to get good eucalyptus timber will be to grow other varieties or selected strains like the San Jose blue gum.

weigh over fourteen hundred pounds. Again a letter comes to this man that a certain farmer has a team of horses weighing eighteen hundred pounds; they are well broke and fit for city use. Teams of this kind usually weigh a little over sixteen hundred pounds and are usually unsound. The farmer has himself to blame a great deal in this as it is quite customary to allow the colt to follow its mother when she is working. For instance in hauling grain from the field to the warehouse in the middle of summer, a distance of ten miles or more, you will see these colts going along generally tired and worn out. This is what creates blemishes and stunted horses and the sooner our farmers will get to realize that the first twelve months of the colt's life is the principal time for development, the sooner we will have good draft horses to fill our city wants.

KERRY CATTLE IN CALIFORNIA.

California is the possessor of but one herd of Kerry cattle, one of the most interesting little breeds of dairy cows that there is. That is the herd of F. J. Rodgers, and is kept on the Rodgers ranch near Los Gatos, Santa Clara county.

Only eight or nine herds of Kerry or Dexter cattle are kept in this country, although a few were introduced in the 50's. In 1859 the report of the Massachusetts Board of Agriculture contained the following, by Sanford Howard of Boston, Mass., the first importer, which we take from the American Kerry and Dexter Cattle Club bulletin:

"The Kerry breed belongs to the county of that name in Ireland, or more especially to the mountainous portion of that county, where they have probably existed coeval with the present race of human inhabitants. They were different from the cattle which occupy the lower and more fertile sections of the island—the latter, as has already been observed, belonging to the Loughlin tribe, of large size the horns drooping, sometimes crossing each other beneath the lower jaw. The Keries, on the other hand, are small, with horns of medium length, rising, and generally somewhat spreading. The color ranges from black to brindled and red, sometimes with a little white, but black is the prevailing color, and is preferred as denoting the nearest affinity with the original type. The Kerry cow has always been considered remarkable as a milker. Youatt says she is emphatically the poor man's cow; hardy, living everywhere, yielding, for her size, abundance of milk of good quality.' Milburn says, 'she is a treasure to the cottage farmer—so hardy that she will live where other cattle starve. She is a perfect machine for converting the coarsest cattle-food into rich and nutritious milk and butter.'

"In 1858, and also in 1859, I visited the native country of the Kerry cattle, chiefly for the purpose of learning their characteristics, and purchasing some to send to America. I found the cattle somewhat smaller than I had supposed them to be, but evidently very useful in that locality—living where no other dairy cattle that I have ever seen could live. In several instances they were met with at elevations of 1,500 to 2,000 feet above the sea, sharing with the goat, the wild herbage of the mountainside. As illustrating their hardiness, the following incident is given: A man led me up a mountain glen to see a lot of three-year-old heifers he had grazing there. It appeared a mystery to me how the cattle could get round and over the rough rocks, and obtain a subsistence, even in summer. Having noticed that the man had several stacks of hay down in the valley, where was the rude habitation which he called his home I asked him if he was going to take the Kerry cattle there for the winter. He replied, 'No, the hay is for the lowland cattle and ponies.' He had just been telling of the deep snows which sometimes fall in the mountains and I asked what the cattle would do in such cases. He said, 'The snow generally softens after a day or two, and the cattle can work through it.'

"It is difficult to estimate the weight of these cattle, compared with others, from what I have seen of them. They are generally large bodied in proportion to their height, their legs being short, and the shank-bone very small. Their heads are generally handsome and the counten-

Profit in Good Drafters.

[Written for the PACIFIC RURAL PRESS by
W. M. CARRUTHERS.]

There seems to be a kind of an idea amongst our farmers and stockmen that the raising of draft horses will soon be a losing game. Few of our stockmen seem to take up this draft horse venture very extensively as the most of them would rather devote their time and money along other lines of livestock breeding. The auto-truck seems to be the bug-a-boo against extensive breeding of draft horses and our over-cautious breeders say "eventually the auto-truck is going to put the draft horse out of business."

No doubt this will happen if all our best breeders get to thinking this way. It is just such ideas that have given the auto-truck the entering wedge and helping it to forge ahead to take from the horse what for ages has been his. The money that is being spent to advertise these auto-trucks is so large that if it were put in print it would be very apt to be contradicted. One company even goes so far as to give big draying firms the use of an auto-truck for six months for nothing and if it does not make good no pay will be asked. It usually makes good as the manufacturer of this certain truck takes special pains to see that it will accomplish the work that it was built for.

The writer has interviewed, during the last few months, a number of the largest draying firms in San Francisco, Kansas City and Chicago. He has come to the conclusion that the horse may have reached his zenith but he has still a long afternoon.

If our stock men raising horses would advertise this noble animal one-tenth as much as the auto man does his truck and make good in raising the kind of horse that our great cities demand, the auto man would have much harder sledding and our horse raisers would be putting some of the money in their pockets that really belong to them.

The great advancement of the auto-truck can be laid to many causes and one of the chief ones is that the horsemen are helping the auto-truck manufacturers more than any other thing. The bluff that the auto men are putting up that the draft horse is fast becoming extinct on our streets is getting below the skin of our stock men and is showing its effect upon our horse market especially in California. Most of our great draying firms have come to the conclusion that on a long haul the auto-truck is much cheaper than the horse but on the short haul the horse is much cheaper than the auto-truck. Another fault our draymen find with the auto-truck is, that when it begins to need repairs its profit-making has ceased and from then on the horse would be much more valuable to them. Another trouble with the auto-truck is that it has a great deal of difficulty in starting a load out of the freight yards and from the warehouses where the ground is a little rough. In such cases the horse is the much more superior of the two and it is a question if the auto-truck will ever gain the superiority at this certain kind of work.

Recently one of the largest contracting firms in New York city has ordered all its auto-trucks abandoned and orders have been given to a Chicago firm to supply their wants with heavy

draft horses. This New York firm has been filling contracts to build tunnels in and around the city of New York for a great number of years past and have given the auto-truck a splendid test. In going over their books they find that the horse is far more cheaper and the work is accomplished much more satisfactory than with the auto-truck. That other great draying firms are coming to the same conclusion as this New York firm has, is in the announcement the other day of the Sperry Flour Company to abandon their auto-trucks and do their work again with horses.

In Chicago and Kansas City many of the leading firms advertise their business with draft horses. They make it a point to purchase nothing but the very best to do their work. Uniformity in size and color is their chief aim. One firm will buy nothing but blacks, another grays, another roans and so on. Something attractive is what they are after and who is there among us who will not stop and look at a four-horse team of these noble animals weighing around a ton each, uniform and clean in their makeup, hitched to a truck with six or ten ton of a load on it?

An annual horse show in the city of San Francisco would do more to stimulate the breeding of draft horses than any other thing the writer knows of. Toronto, Canada, rules the North American continent with its draft horses and its connection with its mother country instilled in it the knowledge that the breeding of draft horses would never be successful unless shows were maintained to exhibit the horse from colthood to maturity.

Travel over Canada and investigate a little and you will be astonished to find out that practically every town in the Dominion has a horse show some time during the year. This is educational horse breeding and when our stock men all over California will foster this kind of work we will have more and better draft horses.

Stand on any of the leading corners in the city of San Francisco for thirty or forty minutes and watch the draft horses pass. One will come to the conclusion that somebody must be raising draft horses because you will have seen many fine animals passing along. Most of these good horses were not raised in California nor on the Pacific Coast.

The Wells Fargo Express Company import from the East practically every horse that they use in their work. Some of our largest draying firms have been importing horses from Chicago to San Francisco. These horses are costing the firms who are buying them seven hundred dollars a span with the freight added from Chicago here. Surely our breeders here can afford to raise horses at a profit when they can receive such prices for them.

Last week the general manager of one of our large draying firms in the city told the writer that many of the farmers in this State had very little conception what comprised a really good draft horse. He receives letters very often from the country stating that there is in a certain locality several good draft teams for sale weighing sixteen hundred pounds. Upon investigation it usually turns out that none of these horses

ance lively, but with a mild expression. The best of them are decidedly attractive in their appearance. When taken to the low country and supplied with plenty of nutritious food, they become more bulky, but I had no opportunity to see what would be the effect of breeding them for several generations in a milder climate and on a better soil."

Mr. Rodgers has a herd consisting of a three-year-old bull, six pure-bred cows, a few calves, a crossbred Kerry and Jersey cow, and two grades of part Holstein cows. The Kerry cows give high testing milk and the Kerry-Jersey cross gives

milk that is exceptionally rich, though there is not very much of it. The Holstein cross is the best, giving large quantities of milk, testing about 4.5. These cows eat everything that comes their way, and appear to like the coarser hay better than fine hay, reminding them more of home, evidently. They are a very attractive looking breed and should do well for a family cow where food is not first class and funds low.

The herd was to be exhibited at the last State Fair and probably will be this Fair, so that all visitors will have a chance to see them.

Dairymen Fight Tuberculosis.

[By OUR ASSOCIATE EDITOR.]

The enforcement of the dairy bills prepared by the dairymen themselves will do great things in eradicating bovine tuberculosis, with contagious abortion also, which is a bigger problem than tuberculosis. It is a demonstration of the fact that more progress can be made in letting the dairymen make their own laws than in passing all the laws that boards of health, city clubs, and other ignorant people, as far as dairying is concerned, could pass in a lifetime.

The dairy bills prepared by the dairymen and creamerymen, and doubtless introduced in the Assembly before this by J. W. Guiberson of Tulare, president of the California State Dairy Association, not only prevent interference from unwise municipal ordinances, but make a great advance in actual cleaning up of the dairies, in the health of the cows, and otherwise. It takes that step in such a way as to invite the cordial co-operation of intelligent dairymen instead of their opposition.

Not only has it done that, but it appears to have scared off some freak legislation which others than dairymen were contemplating, and although not along the lines which "science" says is necessary for bovine health, it is so sane and sensible that the support of persons who believe that tuberculin testing is the greatest thing in tuberculosis fighting has been promised if necessary. Probably the essential features of the bill will go through so readily that such support will not be needed.

Two Bills.—The cleaning up of tuberculosis is in the enforcement of two different laws, one dealing with dairies supplying milk to cities, the other dealing with dairies with which the municipalities are not directly concerned. The part that affects the cleaning up of tuberculosis and abortion is essentially the same in both. Naturally, the sanitary requirements affecting dairies supplying market milk to municipalities are more strict than those affecting other dairies. The enforcement of the law for market milk is also left to the municipalities concerned, the other to the State Dairy Bureau which now exercises a supervision over all dairies.

Operation.—The mode of operation is the essential thing for the dairymen to consider. The cleaning up of dairies is based on exactly the same principles that cleaning up of tuberculosis or consumption in the human family is; that is, good food, good care and sanitation. The tuberculin test comes in only incidentally and not as a compulsory feature.

The first thing is segregation, the removal of all animals that show any symptoms of disease, tuberculosis, abortion, or otherwise, from the healthy animals. The present law provides that milk from sick animals shall not be used for human consumption, and it is to the advantage of every dairyman to see that sick animals do not communicate disease to sound ones. Veterinarians may be used to do this segregating, as a person practiced in diagnosing disease could detect animals that might spread infection, when an ordinary dairyman could not. This segregation is made, however, entirely of animals that show physical signs of disease; it is not based on a tuberculin test, which experience has shown occasionally works on well animals, and commonly shows up animals as diseased which really have but small infections that do no harm to anybody and often heal up.

Further Detection.—Further detection of tuber-

culosis is by means of the microscope, and, if necessary, the guinea pig. If there is the slightest occasion for believing that there is tuberculosis in the herd in a form that might affect the milk, a composite sample of the milk is taken, and if tuberculosis germs are found, the milk of each animal is examined and the cow emitting the germs may be slaughtered without compensation to the owner, though if the meat is good it may be used for beef.

This gives the milk consumers the clean milk they want, and protects hogs and calves. Possibly all milk going to the market may be tested in this way, and in butter-fat dairies it will depend upon the wishes of the examining inspector or dairyman as to the milk test. Whenever tuberculosis bacilli are found, and the cow emitting them cannot be determined, the whole herd may be tested with tuberculin, which is the only way that the test can be ordered. Likewise, if the inspector wishes to segregate a cow that the owner thinks is sound, the test may be used as an arbiter.

Segregated cows are to be kept separate for months, after which they may be examined again, and if found healthy, put with the other animals. It would be a sick cow that would not recover if given the best of care for six months and not required to give any great supplies of milk; and if only healthy cows were kept together and given good care, good feed and good surroundings, those with but slight traces of disease would almost invariably recover. It is this plan of attack upon bovine tuberculosis that is being adopted in New York in place of tuberculin testing, with the support of Veranus A. Moore, head of Cornell, the great veterinary college of America, the State Live Stock Commissioner, and others who know the science and practice of bovine tuberculosis control.

A Comparison.—Compare this method of giving six months good care to unthrifty animals, with the tuberculin test. It is universally admitted that a reaction is simply a stimulation of the disease, that it makes an animal with tuberculosis a little worse than it was before. It is also generally admitted by the proponents of the test that a cow with a mild case of the disease will react at one time, but if dried up and given good care for six months she will usually not react the second time; in other words, she will have practically recovered. The physical examination and segregation, with good care, will therefore let cows mildly affected recover from the disease. It will lack the disadvantages of making them sicker, if they have the disease at all, and it will not indicate that perfectly healthy cows are tubercular as the test often does.

The detection of tuberculosis bacilli in milk is not difficult. By a certain process of coloring they are distinguished fairly well from other bacilli, and, with some exceptions, a microscopic examination of a couple of drops of milk will show whether milk is free from these germs or not. To be sure, it is customary to inject the doubtful germs into a guinea pig for further development, but the occurrence of these bacilli in milk is so exceptional that not a great many guinea pigs are necessary.

Such segregation of cows that show disease upon examination, the good care of others, the detection of cows whose milk might injure animals, human, bovine or porcine, in other words persons, calves, or hogs, which consume it, is so reasonable that no city which wanted to preserve its citizens, no dairyman with respect for the wel-

fare of other men and care for the health of hogs and cattle could do otherwise than give it hearty support.

Bovine tuberculosis is such a financial tax upon the dairyman in the lessened productivity of his cows, in the loss of others, and in loss of hogs and calves, that this rational method of eradication gotten up by dairymen and based on good care, sanitation and common sense, is the greatest step forward that has been made for a long time.

STRONG MILK.

To the Editor: Kindly inform me how to overcome strong milk in a three-quarter Jersey cow. I had been feeding alfalfa hay with two quarts alfalfa and one quart middlings twice a day. Thinking the strong milk came from the feed I changed to oat hay and alfalfa with a soft feed of bran and middlings. If you can suggest a better ration I would appreciate an immediate answer.—SUBSCRIBER, Los Gatos.

There is nothing in either ration that could cause strong milk, nor will a change of feed likely benefit the trouble. If the cow is in good physical condition, as we should judge she is, the trouble very probably comes from the entrance of bacteria during or after milking. We would suggest a thorough cleaning up around the milking stable, if possible to be followed by a disinfection of the premises. Have the flanks, udder and teats of the cow thoroughly cleaned before milking and scald all utensils used for the milk. This is no intimation that everything is not in a good sanitary condition but simply that the harmful bacteria may have gotten well established on the premises and the entrance of a few is enough to seriously affect the flavor of the milk. Once the trouble was checked it could be kept down with the usual sanitary methods. Would be glad to hear if these measures are ineffectual. Usually they are all that is needed.

Your first ration, considering expense, should be about as good as you would wish. Some manufactured cattle feed made of alfalfa meal sweetened with molasses would probably be more attractive to the cow than alfalfa meal alone, and if you could buy your own molasses by the barrel and mix some with water in preparing bran, middlings or alfalfa meal, it would also be acceptable and inexpensive. D. J. W.

REGISTERING HOLSTEINS.

To the Editor: Kindly inform us where and how to register Holstein cattle. Are there any books issued covering the modus operandum of registering this breed of cattle; if so, how can we obtain a copy? We have recently purchased a bunch of Holsteins, of which several are pedigreed stock, and we desire all the information we can get as to how to keep the offspring properly registered, so in case of sale we can show the purchaser what he is getting.

Santa Barbara.

HOLLISTER ESTATE Co.

Full information on this subject can be secured from F. L. Houghton, secretary of the Holstein-Friesian Association, box 119, Brattleboro, Vt. The previous owners of the cattle should pass over certain papers with the cattle which are necessary to have the transfer certified by the association. Owners of registered Holsteins will find it profitable to join the association. Others may register cattle, but reduced charges are made to members.—D. J. W.

A COW CATERER.

C. H. Fuller of Fernside Dairy, Maine, uses what he calls a "cow quick-lunch counter on wheels," and gives the Rural New Yorker an account of it: You will see that it is a box with different compartments and measures, fitted upon a toy wagon, so that it runs easily through the barn. I feed cotton-seed meal, bran, dry grains and cornmeal. These are in different compartments, and there are measures of different sizes so as easily to make up a balanced ration. There is also a shelf in this box for salt, or for a tonic if that be needed. I have found that my cows do better when the feed is mixed for each cow separately, and by studying the likes and dislikes of each cow it is possible to make them do better in this way than if all the feed were mixed in large lots, so that each cow got the same.

The Recent Frosts and Citrus Fruits.

[Written for the PACIFIC RURAL PRESS by
J. E. ADAMSON, Pomona, Cal.]

It is my intention to write for the readers of the PACIFIC RURAL PRESS a detailed account of the hard-fought battle against Jack Frost which resulted in a most signal victory for the organized forces of fruit-growers at Pomona, from the preliminary skirmishes in December, 1912, to the four days' engagement ending January 8, 1913.

It is always better to wait until the smoke of battle has been fully cleared before writing a history of a war. In fact, it is often found that reports sent from the field during war are one-sided and misleading, so I feel that in the course of a week or two we will be better able to give a rational account of the big frost fight just ended.

It would seem to be well, however, to give a foreword, as an outline of the work to follow. The fight, during the month of December, 1912, was easily handled, though some very low temperatures were reached at times, but were so successfully met that the growers had grand confidence in their power when the alarm was sounded for the fight on the

night of January 4th. As in all great strifes, if they could have seen ahead for the next four days, they would have shrunk from the task. But it was met and handled by a brave band of men and women, and, in the extremity, by the boys and finally by the girls of the family, against odds that seemed overwhelming, but in a way that the rich green of the trees and the golden yellow of the fruit attest was undoubtedly a victory.

It is too early yet to get at results accurately, but it would seem that the fired orchards would save at least 75% of the crop.

In orchards where there was no preparation for frost-fighting, the damage was much more severe. The so-called frostless districts seem to have fared worst, as the frost settled like a vast blanket over the whole land, the upper levels showing the low temperatures first.

That there was no warm upper stratum of air was apparent from the conditions on the night of Sunday, January 5th, when the temperature was 29°, with the wind blowing a gale. Usually the wind, in strength enough to move the tree-tops to any considerable extent, can be depended upon for a rise to 40° or more. Not so that night, however. The wind had the effect of carrying away from the valleys the heat that was left, and a rapid drop to a very low temperature was inevitable.

The total extent of the damage cannot be estimated for at least three weeks after a freeze takes place, and the guesses of gentlemen in steam-heated offices can be taken with a grain of salt. That the actual damage was immense goes without saying, as citrus trees are not adapted to go through such low temperatures without damage to the tree and to the fruit. One mitigating circumstance is the maturity of the fruit. It was much riper than when the freeze of December 25, 1911, came, and mature fruit undoubtedly stands more than green or partly ripe fruit will stand.

One will not go far wrong in predicting that when the final count is made, the balance in favor of the oil-burning orchard heater will be such as to make the silly fight against its use so utterly ridiculous that even the misguided real estate men who are fostering the antagonism will see their folly. There can be no doubt the oil heater, properly tended, has this year saved enough fruit to warrant its installation, even in the frostless (?) districts as insurance against a repetition of the catastrophe of the past two weeks.

Too much stress cannot be laid on the term 'properly tended,' as many growers let the pots go without attention after lighting, with resultant damage to the grove, and a detriment to the general cause of frost-fighting, as the opponent always quotes the failure without the explanation for the failure being apparent.

In the Pomona valley there was about 3000 acres tributary to the packing-houses in Pomona, Claremont, and Norod, under protection, and while portions of this district have in the past had more than their share of frost, this year the orchards look better than many more favored locations, and in many groves in the best protected parts of the valley much of the tender growth is still on the trees.

Only in the case of isolated groves and the frontier of the fight can real damage be found, and the men and women who stood shoulder to shoulder through a bitter fight against fearful odds, have accomplished a work which will be copied by many, to the saving of more than one rich crop to the citrus belt.



How Big Is Your Bank Account?

That's equivalent to asking you the size and quality of your crops. If your crops are not as big and good as you think they should be, why not give your soil a good dose of tonic that will make it do its very best? We suggest that you try

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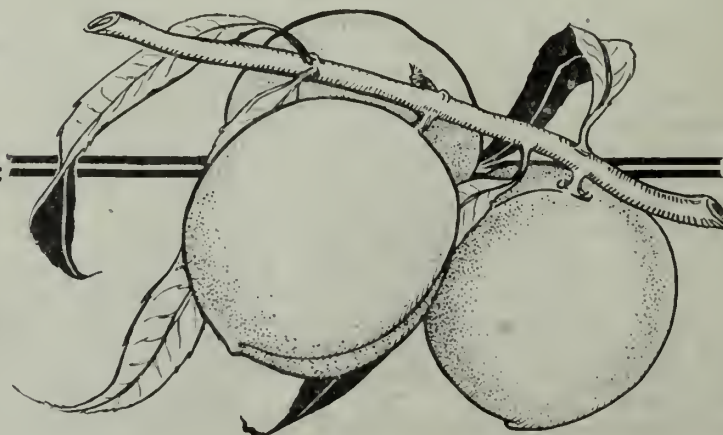
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See what Prof. E. H. Van Deman says of this wonderful new apple:

"For two years past I have seen the Red Gravenstein Apple at some of the fruit fairs in the West, and among them the National Apple Show at Spokane. I have also eaten it, and it is a true Gravenstein in every particular except color. In this respect it far surpasses the old variety, because it is almost solid red and exceedingly attractive. I think this difference will cause it to sell even better than the common Gravenstein, from which it is a bud-sport."

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Promoting Public Markets.

In New York State they have great propositions under discussion to promote the fairer trade in food products between producers and consumers. At a meeting recently held in New York City, among the subjects discussed were: Regulation of the commission business, proper grading and packing of products to meet the needs of family trade, and the establishment of a market system convenient to consumers, and yet much more economical in its workings than the present cumbersome plan of handling by means of numerous wholesalers, jobbers and various hangers-on in the produce business.

In New York City it is proposed to provide receiving terminals along the water front of the North and East River, and a sufficient number of retail markets for the handling of foods, in locations accessible to the population in the more crowded districts of the city. The city should furnish the sites and buildings for such terminals and retail markets, to be operated by a co-operative company of producers and consumers, paying the city a rental appropriate to the investment actually made. The committee's plan is the organization of a co-operative corporation of 100,000 shares of \$5 each, and \$1 per share as a surplus, no individual to hold more than 100 shares, and to have only one vote for his holdings. The purpose of the company will be to handle the produce of local co-operative associations, and of other individuals who will comply with the grading and shipping conditions established by the company or

State. Out of the profits of operation no more than six per cent dividend shall be declared on the stock, the balance of the profits to be distributed to the co-operators in proportion to the business they do with the concern.

A resolution was adopted recommending to the Legislature the creation of a food commission, similar to the present Public Service Commission, to establish markets in consuming centers, and to do everything possible to promote closer relations between producer and consumer. The meeting strongly endorsed the regulation of commission men by law.

A resolution was adopted, requesting the State Agricultural Society to secure, if possible, a liberal appropriation to further the work of co-operative movements looking to the economic distribution of food products in the interest of the people of the entire State. In support of this resolution the chairman urged the fact that we have precedent world wide and centuries old in asking this appropriation. We are not asking the State to extend further educational or financial advantages to the people, but we are asking the State to come forward in the interest of its producers and of its consumers, to effect an organization by which we can save the whole people of the State a lot of money. This has been done by the governments of England, Germany, France, and practically all the countries of Europe, and some have gone further and lend very substantial aid to the organizations after they are effected. We do not ask that and do not want it, because we think co-operative organization is better, more vital and more virile if it finances its own operations, but we think this initiative step to help organize the producers is a proper one for the State.

THE OLIVE: OLD AND NEW.

(Continued From Page 97.)

Of course, no one can tell how long this sententious declaration may be true, even if it should be nearly true at this moment, for the olive is a very long-distance proposition. It has seen more phases of human wisdom and folly than any other fruit tree, and it has ministered more to the industry and thrift, and to the greed also, of men than any other. It is the associate of the vine in the antiquity of mankind, but it passes the vine in glory, for it declared the triumph of Noah, while the grape brought him to shame. In view of its history in the world, the California life of the olive is but a moment—that is, counting the two generations of Americans who have had to do with it. Therefore, we ought to be very cautious about reaching conclusions about it. In classic times the olive was honored as the tree of civilization, because no barbarian had patience to wait for results of effort placed upon it. Perhaps, up to date, impatience with the olive is but a reassertion of the barbaric attitude—a reflection which is commended to Californians who have chopped down thrifty trees to warm themselves with the flames thereof, refusing to wait even a decade for fruition. Who can tell how cruelly we have robbed our grandchildren by our murderous impatience! And who can be sure that visiting disfavor upon some varieties for lack of bearing is really as barbaric as to beat a baby? But such insoluble questioning is vain: it will be better to await the wisdom which, in the case of the olive, may be expected to crown the experience of about a thousand years.

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CACTUS AND DAIRY CATTLE.

To the Editor: I saw an account of feeding cactus to milk cows that said they gave more milk than when fed on alfalfa, a little alfalfa being fed with the cactus. Do you think that is correct, and would it pay to grow cactus for milk cows to feed with alfalfa or grain? How is it grown? On what kind of ground and does it need cultivation or irrigation, or fertilizing? When should it be planted? Will frost hurt it? Will it drown out if the ground is too wet in winter? How are the sets put in, where can I get them and at what price?—J. A. D., Walnut Creek.

If the account you saw concerns the two Holstein cows of H. R. Timm, Dixon, it certainly should be correct. Mr. Timm has planted out several acres to cactus for his certified dairy and as we understand it this test was as much to convince himself of the value of the cactus as a feed for dairy cows as anything. These cows were being fed at the State Fair in sight of everyone and there is no reason for believing that their milk yield was anything but as represented.

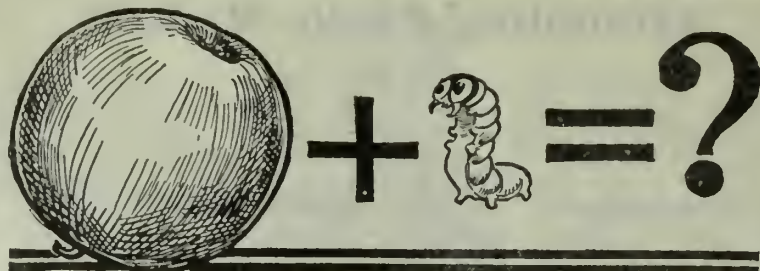
The cactus contains a very high percentage of moisture so that the actual food content left is rather small. It is, however, of a nature that fits in very nicely with alfalfa hay and the moisture itself is of no small value in the ration when other feed is hay, grain, or other dry material. In fact we should attribute to the beneficial influence of this moisture any special increase in the milk flow. It is our opinion that a small plot of cactus would be a fine thing to have on any dairy and in case that the cactus was crowding out anything of less value than alfalfa quite an extensive planting would probably be good.

It will grow practically anywhere in the agricultural districts of California except where the elevation is sufficient to cause too low temperatures and except near the coast where fogs and cold cause too slow growth. Either a light or a heavy soil will do though the better the soil the better the yield. It requires good cultivation until well started, or at least is better for the cultivation. With a rainfall like that of Walnut Creek it would require no irrigation. In the San Joaquin valley last year when the rainfall was scant, irrigated cactus made a much better growth than unirrigated. In other words it will do little unless it gets moderate supplies of moisture whether that moisture is supplied by irrigation or otherwise. Moderate amounts of moisture, however, appear to be sufficient.

This answers a question of soils. Shallow soils that soon dry out naturally will not give the growth that deep, well watered soils would, just as would be true of any plant. Unless the soil was very infertile the cactus should not need fertilization for a long time. It seems to be, however, a hearty feeder and doubtless would ultimately respond well to fertilization.

It should be planted in late spring or early summer, or at least after the heavy rains are over and air and soil fairly warm. It cannot stand being set out in heavy, wet soil, though when well established, an excess of moisture will not injure it. If you intend to plant cactus in heavy, rather wet soil, it might be a good plan to set each plant in sand, or loam. Moderate frosts will not injure the cactus, heavy frosts will cut back the new growth and severe freezes such as recently came will cut back well into the old growth. However, ordinarily the cactus is well fitted to the interior and bay counties and exceptional frosts are not to be especially feared.

Cactus are planted simply by putting in a joint, or leaf which is the common term, and letting it grow. A person can



IS FRUIT growing a gamble with you, Mr. Orchardist? Are you continually wondering if your crop of fruit will be big and clean? Why not do away with this uncertainty? Use

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cut up a joint into half a dozen pieces as he would a potato and put them in sand, thus getting several plants, but it is doubtful if this is more effective than setting out whole joints and looking after them. The distance apart will depend upon the variety as will also the price. For information and prices write to our advertisers. The Luther Burbank Company, Santa Rosa, gets out a catalogue with much information on the latter subject.—D. J. W.

RAINFALL OR IRRIGATED ALFALFA?

A caller the other day wanted to get a few pointers about dairying and a few other matters. On the place there are 50 acres of bottom land which he was intending to set out to alfalfa, to be grown without irrigation, this alfalfa to be used for dairying.

Now the question at once arose, Why not put in a pumping plant and get all the alfalfa that the soil and climate was good for? Instead of the above yield, there could be more than double the tonnage, and possibly three times as much, provided it was handled properly. Practically speaking, therefore, the value of the land would be two and a half or three times as much irrigated as unirrigated, excepting for the cost of irrigation.

To get this water there would be some expense. In a somewhat similar situation not a great distance off a well was sunk 200 feet or so at a cost of \$600 and gave 400 gallons per minute. The total lift, or head, probably was not great on bottom land in north of the bay valley, though the distance was not known.

If a similar irrigating equipment on this 50 acres were established it would cover the land 21½ feet deep, as much water as would be required in a whole season's irrigating, in less than two months and a half. In other words, it would have double the efficiency that would be required.

Outside the well, \$600, the plant would cost not more than \$1,000, electricity being convenient for power, which would make the total cost \$32 per acre or less.

After the alfalfa was well established there would be a net profit of about \$5 per ton on the alfalfa, with prices like those of the last two seasons. In other words, the extra yield would each year pay for the outfit.

Added to this is the increased benefit from the dairy. More cows could be kept and they could be supplied with fresh alfalfa longer than if no irrigation were practiced.

There is an immense amount of land in California producing either nothing, providing the rainfall is scant, or half a crop if rainfall is fair, that might as well be adding wealth to the owner and the public by the use of the water that lies but a short depth beneath it.—D. J. W.

Alfalfa Will Feed One Cow Per Acre—Burbank's Spineless Cactus, Without Irrigation, Will Feed Four Cows Per Acre

You know what one acre of alfalfa will give you in feed—enough for one cow. Burbank's Spineless Cactus gives four times the feeding value of alfalfa per acre—enough for four cows.

These facts are not merely our statements—they are what anyone who has grown Burbank cactus will tell you.

It took sixteen years of Mr. Burbank's personal attention to produce this wonderful spineless cactus. It will grow on any land where there is three to five inches of rainfall per year—rainfall that does not even have to be regular or come at stated periods.

It will grow in any country regardless of how high the temperature is, but it must not be planted where the ground freezes over one inch in the winter time. It will grow in rich fertile valleys, under cultivation, or it will grow on desert wastes, where there is practically little rainfall, without cultivation.

Stock fed with spineless cactus require no water. They have gone from six to eight months without

a drop of water to drink, as they obtain enough moisture from the plant itself to supply their needs.

From this information you can see the wonderful possibilities of Burbank's Spineless Cactus for feed. Now is the time that you should take advantage of this and plant acres of this wonderful forage.

All experimenting has been done—Careful statistics have been made—all knowledge as to the habits of Luther Burbank's Spineless Cactus and where it will grow is at hand. All you have to do is to plant the same and reap the rich harvest now.

Send for catalog. This catalog gives Luther Burbank's own story of the development of the Spineless Cactus plant.

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This new prune is a vigorous, healthy, rapid grower, and unusually productive.

The fruit is very similar to the common prune in size, form and color, and has the golden, sweet, rich flesh.

The stone has been eliminated wholly with the exception of a tiny speck. The fruit is very valuable and the tree is very productive. Here you have something that will bring you dollars and cents, such as no other variety of fruit has even produced for you.

Send for our new nursery catalogue listing many new and wonderful Luther Burbank productions in fruits and berries.

Write for the 1913 catalogue of the wonderful new Luther Burbank creations in flowers.

THIS CORPORATION—THE LUTHER BURBANK COMPANY—IS THE SOLE DISTRIBUTOR OF THE LUTHER BURBANK HORTICULTURAL PRODUCTIONS, AND FROM NO OTHER SOURCE CAN ANYONE BE POSITIVELY ASSURED OF OBTAINING GENUINE LUTHER BURBANK PRODUCTIONS.

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2525 TULARE ST. Main Office FRESNO, California

Game Laws Elsewhere.

We are not undertaking the discussion of the agricultural relation of game laws in any spirit of narrowness or prejudice. As the legislature of California has before it, this winter, the revision of these laws, we simply desire to induce the consideration of the agricultural point of view as derived from general experience in the operation of such regulations and from individual experience in this State. To that end we invite discussion from nature lovers, from nature killers, from farmers who lose domestic animals or crops through marauding wild life—in fact from any one who has interests or convictions. We shall naturally assume ourselves what we conceive to be the plainest agricultural aspects of the matter and endeavor to instruct our readers therein. If any one is offended thereby, let him speak now, while legislation is pending, or else forever hold his peace.—EDITOR.

HOW GAME LAWS ARE WORKING IN MASSACHUSETTS.

A Massachusetts farmer writing to the Rural New Yorker, sets forth the following facts and beliefs:

It makes the blood boil at the injustice

of the Fish and Game Commissions and their subordinate officers, who are continually encroaching on our liberties in order, it seems to me, to keep themselves in an easy job where they won't have to do heavy work for a living. Boom your good work, and I would like to have our governors-elect supplied with plenty of your evidence, that they might make proper recommendations to the Legislatures.

Last year in Newbury, Mass., a farmer was arrested for gunning on the Sabbath because it was his chance to shoot a woodchuck which was eating his vegetables. He was discharged (or fined \$1, I am not sure), with loss of a forenoon's time and trouble in order to show that the warden was on his job, as it is performed on the Sabbath. It seems to me that if these wardens were ordered to look out for fake gunners who were looking up the vegetable patches previous to an evening's raid, they would be of more service to the farmer. They would here.

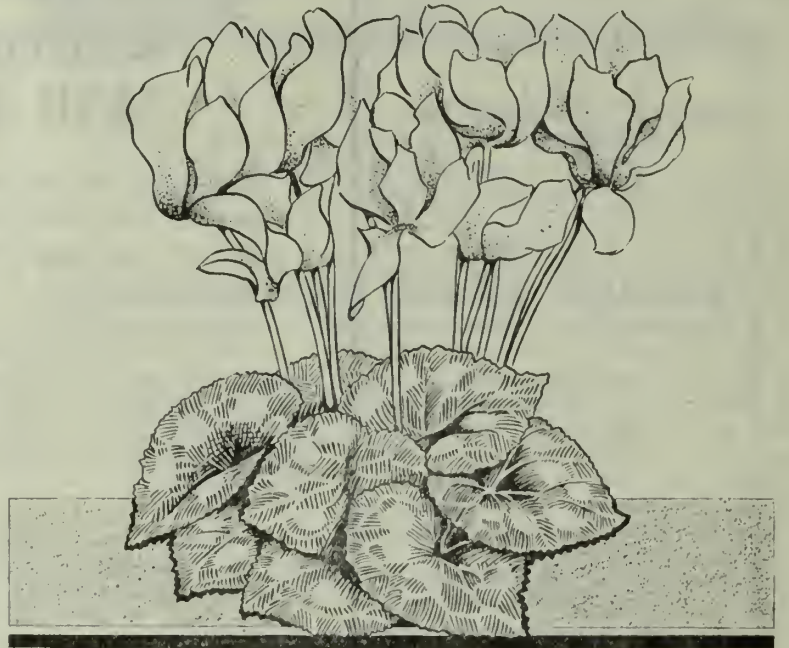
Much land has gone to waste here because the gunners and berry-pickers trespassing will leave down the bars or tear down the walls or cut the wire, making it impossible to pasture the land, and the gunner's nice dog must be allowed to exercise in the fields and bushes, playing with the sheep, until they can be no longer raised here.

The last time a field (now gone to waste) was pastured my father tells me it cost him \$12 damage by the cattle being let out into a garden, by berry-pickers or gunners unknown to him, as the field was two miles from home. He now has a section of wall torn down by hunters digging out a hole. He says the large rocks were rolled out into the field, birches cut down and dirt thrown about so that it would take us three or four hours of good hard work to replace the damage. As he is not able to do it himself he will have to hire it done, costing probably more time, allowing for the natural lack of interest in a hired man.

The Fish and Game Commission of Massachusetts two years ago spent \$3,000 in trying to take our clam flats from the people by means of a law which would give this commission authority to lease them out. Can you tell me where the farmers got a 35-cent value for the dollar counted in a tax to meet such an appropriation? Can you tell me where they or the public get a 10-cent value from the expenditures of our Fish and Game Commissions? Pheasants are raised and liberated to destroy and eat the farmers' corn; deer are protected to live on more savory food than nature naturally furnishes, fish are hatched and trout placed at great expense in brooks, and we read of millions of them being killed by nature's Summer droughts. They have a law passed (respected by no fisherman) protecting short lobsters not capable of breeding, while large ones may be taken. If our Constitution gives us a right to live, hasn't the wild life got to pass, and domesticated animals and birds be protected to make our civilization complete? It seems no worse for me to go to the marsh to get a duck if I have the leisure time and luck than to be forced to go to the roost and kill a tame fowl for the table. Truc, I hate to see deer shot up, but I believe if we cut out the dogs as we have the wolves, bears and the like, deer would be domesticated. At any rate, is it worse than buying veal that had to be killed before being sold? Yes; the skunks must have your chickens; the muskrats must undermine your bridges; the black turtles ought to have your goslings; the foxes must have your hens; the deer must have your cabbage; the woodchuck must have your squash; you musn't go gunning and

exterminate these pests, even if your forefathers took the liberty of shooting the human Indians for blocking progress. You must appreciate the good and growing work of our fish and game commissions and forget the increased cost and difficulty of an honest living.

THE HUNTERS' TOLL OF HUMAN LIVES.
The hunting season which closed November 30th was more deadly than the season of 1911. The dead and injured number 103 and 51, respectively, as against 100 and 37, respectively, for 1911. In 1910, the deadliest year of which there



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It will prove to be extremely helpful in the raising of flowers, trees, plants and vegetables. It is the finest, most complete and comprehensive guide that we have ever published.

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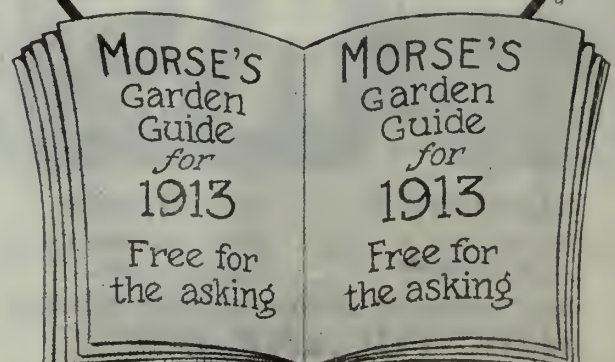
An early scarlet fruited tomato which has proved a success all over the country. Smooth, very even in size and very solid. One of the best house garden, canning and shipping tomatoes in existence. 10c per packet.

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WANTED

1,000 lbs. Bitter Almond Seed.
10,000 Phenomenal Tip Plants.
2,000 Primus Tip Plants

February delivery or earlier.

I offer Texas Umbrella, California Blacknut Walnut, in all grades.

J. L. AMES, Live Oak, Cal.

is record, 113 persons lost their lives while hunting. The following table shows how the deaths and injuries were distributed in the States this year:

State.	Killed.	Injured.
New York.....	10	4
New Jersey .....	.....	1
Pennsylvania	12	5
Massachusetts	4	.....
Maine	13	.....
Illinois	8	.....
Indiana	2	1
Iowa	2	.....
Kansas	1	1
Michigan	26	18
Minnesota	8	6
Ohio	1	.....
Vermont	2	3
Wisconsin	13	12
Alaska	1	.....
Totals.....	103	51

The list of accidents in Michigan is appalling, 26 persons having been killed and 18 injured. Last year only 16 were killed and four injured. The heavy causality list undoubtedly is due to the great number of hunters who entered the woods in that State. Nearly 5,000 licenses were issued by the Michigan game warden.

The deer hunters became such a pest

and caused so much terror among woodsmen in Ontonagon County that placards were posted by the Diamond Lumber Company, warning all hunters to keep away from the lands of the corporation. It is said several employees of the company narrowly escaped being shot by excited hunters, and it was in an effort to end the hazard that notice was served that hunters would be treated as trespassers.

Near Grayling deer hunters were so thick that an agent of the game warden's department refused to go into the woods on land investigation.

One Wisconsin victim was Miss Pearl Sherwood, living near Iony. While hunting with her mother she accidentally shot herself. Her mother dragged the wounded daughter through the brush and timber to her home.

A glance at the causes of the accidents is interesting. The following table shows how they happened:

Shot by companions.....	35
Shot themselves	30
Mistaken for deer.....	112
Shot by unknown hunters.....	7

In Vermont the hunting season does not make any impression on the deer. The law allows only bucks to be shot, and the result is there is danger of the animals becoming a pest to farmers. An effort will be made to change the law so as to allow both sexes to be hunted.

FARMERS AND GAME LAWS.

To the Editor: I am very glad the RURAL PRESS has its eye on the game law situation and is looking out as it should do for the farmers.

The situation at present is just this:

The State owns the game but has no land to speak of. The game is, therefore, turned out to starve or steal its living off the farmer.

The State has collected nearly \$150,000 for the privilege of hunting this game in the way of hunting licenses and the farmer has furnished the hunting ground without getting a cent.

Our game laws are being suggested mainly by the town lot hunter and the Game Wardens, while the farmers who furnish the feed, the water and the hunting and fishing ground are given no consideration or protection whatever.

In an Eastern State not long ago a farmer was fined \$11.00 for skinning a skunk that was killing his chickens, and no doubt the same law will come up for consideration before long in California.

To make a game law that is to be respected in a farming community, the farmers should be shown that their efforts and sacrifices are appreciated. At present after furnishing all the sustenance of the game and the hunting ground, he is compelled to compete on an equal footing with the town lot hunter who furnishes nothing.

I would suggest: (1) that the farmer be given a share of all game killed on his place; (2) that the land owner be given two weeks open season in advance of the public on his own land; (3) that all hunters and fishers on private property be compelled to show a written permit from the owner and that Game Wardens be employed to see this rule enforced. The fine should be \$25.00, one-half to go to the farm owner.

It costs more to enforce the non-trespass laws on an ordinary hill farm than the hunting and damage is worth. If a farmer arrests a trespasser he gets his ill will, manifested in such a way that he is apt to be sorry he ever said anything. As suggested by the RURAL PRESS: "Let the State secure preserves and bear the cost of maintaining them" is sound and until that is done, give the farmer something for pasture.—H. O., St. Helena.

Do not trust to Providence

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your live-stock

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AMMONIATES

Gold Bear



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FOR CALIFORNIA SOILS

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Dollar Strawberry Plants, \$5.00 per M.
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CHOICE FRUIT TREES

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TREES

OF EVERY VARIETY.

It makes no difference what you
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adapted to your locality and suggest
that you get in touch with us at
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OUR BOOK

"CALIFORNIA HORTICULTURE"
is truly the fruit growers' guide. It
is filled from cover to cover with
best methods for planning, planting,
pruning, etc. It describes over 2000
varieties of trees and plants. Has
120 pages and is beautifully illus-
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Box 18 Fresno, California

AGRICULTURAL REVIEW.

Confiscated Oranges Sold.

The oranges shipped from Tulare county early this winter and seized by the Federal Government for being too unripe have been sold at auction in Chicago. The seven cars sold at prices varying from \$585 to \$940. These oranges were picked between October 28 and November 2 and were shipped two or three days later. They were repacked with tissue bearing the label, "Colored by sweating," and in spite of this and the delay, brought the above prices. It looks as if a little more opposition to dry fruit and a little better judgment regarding fall oranges would be better for everybody concerned. The proceeds after expenses are paid go to the Government.

Tree Prices Advancing.

Word comes from the Tulare groves that the price for orange trees for spring planting has advanced rapidly recently, owing partly to loss of stock in some nursery districts of the State and the heavy demand for young trees by would-be planters in the Tulare and other foothill districts. It is said that there has been a big demand for irrigation machinery and other equipment for land development during the past two weeks.

A. G. Shulz, horticultural commissioner of Tulare, has opened up a citrus receiving station at Richgrove. Trees for the surrounding district had been inspected at Ducor and reshipped. A new inspector will probably be appointed for the station.

Rice in Tulare and Kern.

The popularity of rice on heavy lands in the northern Sacramento may be paralleled in Tulare county. At Delano, Jesse Peter put out a small acreage last year and made a great success of it, according to reports. Word has come that a party in Glenn county is arranging to get 1000 acres, a good part of which may be set out to this cereal.

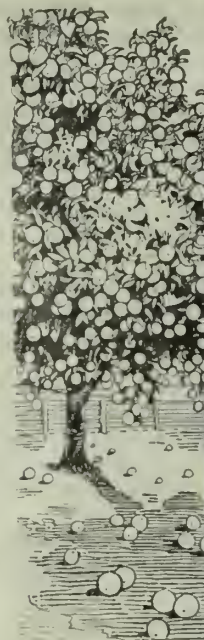
Another coming crop that is doing wonderfully is cotton. B. L. Hoch, a planter in the Palo Verde valley, claims a yield of 16 bales from six acres. The Blythe gin, which handled this crop, turned out 625 bales this season. Long-staple cotton of the Durango and Allen's improved varieties is giving the most satisfaction.

Creamery Payments.

The butter-fat prices paid by Ferndale creameries, Humboldt county, for the payment made January 16, were as follows: Capital, 39c; Grizzly Bluff, 38¾c; Central, 38c; Libby, McNeill & Libby, 36¼c. In a number of the Kings and Tulare county creameries the prices for December were: Riverdale Co-operative, 39¼c; Maple Grove, 39¼c; Lucerne, 39c; Laton, 38c; Swift & Co., of Harwick, 40c; Corcoran, 43c for fat in sour cream and 47c for butter-fat in sweet cream and 53c for butter-fat in whole milk. Central Creamery of Lemoore and Riverdale, various. The Lakeview Creamery of Corcoran paid 8c above Los Angeles butter quotation, or 43c, marketing sweet cream and milk in Los Angeles. These nine creameries paid out \$149,500 for cream during December.

The Dairyman's Co-operative Creamery of Tulare has outgrown its capacity of 4,000 tons and will shortly increase the capacity of the plant by 2,000 pounds. Farther up in the valley, it is stated that a creamery will soon be erected at Stevenson, Merced county.

(Continued on Page 122.)



Fertilize for Fruit, Not for Foliage

A study of the formulas of fertilizers often recommended for fruits would give the idea that foliage and rapid growth is what you seek. The most of them lack fruit-producing

POTASH

Any fertilizer for fruits should contain at least 12 per cent. available Potash. The only Potash Salts that are safe for citrus fruits are Sulfate of Potash and Sulfate of Potash Magnesia (double manure salt).

Applications of such a fertilizer should begin at planting and continue during the life of the tree. It means earlier and longer bearing, larger yields, better grades and shipping quality, and a hard, solid, growth of wood. In all these ways Potash Pays. If your dealer doesn't carry 12 per cent. Potash brands or Potash Salts, write to us for prices. We will sell any amount from a 200-lb. bag, up. Write now for fertilizer formulas and how to make them for Fruit Culture, and special free pamphlet, *Orange Culture*.

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TO CITRUS GROWERS, if the recent frost has caused the leaves on your young trees to drop so they will not protect the body from the hot sun, which will spoil a good many of them if not protected, let us supply you with wraps for them. Others are going to do it, why not you? You can't afford to let your trees go unprotected when for about a cent each you can save all of them.

Also a word to You who are planting deciduous trees. Last season we sold over a million Protectors to deciduous planters, and they find it was money well spent. You know that rabbits, hot sun, sand storms, raking of bark in cultivation, etc., always causes a loss that will many times more than pay for the Protectors to protect your whole planting. Let us sell you Protectors. We have the only Perforated ones made. Write for sample and price.

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ORO LOMA FARMS

\$75 Per Acre

With Abundance of Water

At Dos Palos, in Fresno County, 55 miles from the City of Fresno, 143 miles from San Francisco on the Westside of the San Joaquin Valley.



Ditch to Reservoir at Oro Loma

This property contains an area of 8,000 acres. It is situated in the center of this rich valley, four miles southwest of Dos Palos station on the S. P. railway, in one tract, one-half in Merced County and the other half in Fresno County, State of California. It is level land, having a drainage fall eastward of about 13 feet to the mile.

The soil is a rich fine-shale loam, having a depth of 40 feet and over. By analysis it is shown to be one of the richest and most fertile in the state. IT IS FREE FROM HARMFUL ALKALI AND THERE IS NO HARD-PAN OR ADOBE. It contains a sufficient amount of sodium, potash, magnesia and nitrate compounds, which are the most important plant foods, besides lime, which is not only a plant food, but has a very useful effect in making the ground friable and easily worked. IT IS VIRGIN GROUND and has been used as part of an extensive sheep and cattle ranch for fifty years.

"The west side streams, draining mountains practically free from granites and similar rocks, but with soft serpentines, shales and sandstones, deposit fragments of those rocks in their alluvial fans, and the result is a soil type entirely different from that of the east side and south end of the valley. These shale, clay, serpentine and sandstone fragments disintegrate much more quickly than the granitic sands that contain large proportions of such resistant minerals as quartz and feldspar, AND THE RESULT IS THE MELLOW, LOAMY SOIL WITH ITS FRAGMENTS OF SILICEOUS SHALE THAT MAKES MUCH OF THE WEST SLOPE OF THE VALLEY AND IS SO PRODUCTIVE WHENEVER WATER IS APPLIED TO IT."—From United States Geological Water Supply Paper 222. Preliminary Report on the Ground Waters of San Joaquin Valley, Cal.

WATER

We have an abundance of water already developed from artesian wells and are ready to deliver water to any part of the tract from our present supply. When the entire system of wells and ditches is finally completed the plant will be turned over to the land owners at cost. At that time, water will only cost the actual cash Power Corporation, whose line crosses the property.

The wells are operated by electric power supplied by the San Joaquin Light and Power Corporation, whose line crosses the property.

Electric light is also supplied at the regular rates of the company.

CROPS

These lands will grow anything that California produces—Alfalfa, Fruit, Vegetables, Corn, Berries and Olives are particularly favored in this section as the climatic conditions are especially favorable to this class of farming.

The great Alfalfa farm of Miller & Lux (one of the largest cattle concerns in the world) immediately adjoins the Oro Loma Tract and is on soil exactly like our lands. All dairy products may be sold for cash at Dos Palos, four miles distant.

CHICKENS and TURKEYS do wonderfully well in this section of the valley. The climate seems to be ideal for poultry raising. Quick returns are made and you have a ready market for poultry and eggs. We have had great success with our own chickens, which we have raised in large quantities for use on the ranch and never seen anywhere better results in raising domestic fowls.

One of the largest nurseries of Burbank Spineless Cactus is situated on Oro Loma and the land is pronounced by Mr. Luther Burbank to be unexcelled for the culture of this wonderful new fodder plant, which produces over 200 tons of cattle feed a year. This company has an easy payment plan for planting and cultivating which, together with particulars on Spineless Cactus culture, we will be pleased to furnish on request.

TERMS

The terms of payment are all cash, or one-third cash and one-third payable annually, or one-fourth cash and one-fourth per year, payable quarterly or semi-annually. Or you can pay five per cent cash and five per cent monthly for four months, and the balance in monthly installments covering a period of five years. Interest at 6% on all deferred payments.

DISTANCES

Dos Palos is a town on the S. P. Railroad.
The Oro Loma Tract is four miles from Dos Palos.
San Francisco to Dos Palos, 143 miles.
Dos Palos to Los Angeles, 341 miles.
Dos Palos to Stockton, 95 miles.
Dos Palos to Fresno, 55 miles.

The Southern Pacific maintains an excellent passenger, freight and express service north and south from Dos Palos. Dos Palos is the center of population for over two thousand people and is one of the principal shipping points on the west side of the valley. Here are churches of all denominations, schools, and library. One of the finest high schools in Merced County is located here.

This is the last call in California for the best land at \$75 an acre with water. We say best land because our soil cannot be excelled by any in the state, no matter what price it is offered you. There is no better land. That is why we want you to see it before you pay \$150 to \$300 an acre elsewhere.

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Soiling vs. Pasture.

[Written for the PACIFIC RURAL PRESS by Prof. E. A. Howes, University of Nevada.]

Tillable areas, reasonably productive, should not be utilized for indefinite pasturing. This may be received as axiomatic, in the light of present day agricultural science. Pasture may have its place in a rotation, it may be necessary for a short period for several possible reasons, but it is no longer looked upon as an indispensable feature of farm management.

In the old days, "back East," a large part of the farm was inevitably devoted to pasture. Part of the area was made up of bush lot, slash, and stump land; the other part consisted of certain cultivated fields that had been in hay from one to several years. Some sort of unwritten law seemed generally to relegate this pasture portion to the rear end of the farm, as the boy who tramped back after the cows, morning and evening, can well testify. Indeed those days now possess for us a certain enchantment, given by distance, that renders it almost a sacrilege to attack a system which was so unmistakable a factor of the old farm life. Therefore we approach it as a sort of duty—anyway, going after the cows

was not such fun as some of these Nature scribes would have us believe.

WASTE IN PASTURING.—Scientific agriculture frowns upon the waste caused by the old method. Of course it may not be objectionable to allow young stock to run upon land that is in slow process of clearing. Also we have the range proposition, which really does not enter into the present discussion. Aside from these, it is generally agreed that the idea of indefinite pasture is a wrong one and leads to the wrong use of possibilities. Even the forest pasture is banned; forestry experts are chasing the cow with the bell out of the bush lot, in order that the young growth may have a chance.

It was the lot of the writer to see, last summer, a practical illustration of the result of this banishment. Two maple bush lots stood side by side; really one lot divided by a line fence. One of the divisions had not been pastured for twelve years, while cattle ran at will in the neighboring lot. The demonstration of the utility of conservation, by fencing out cattle, was most striking. The owner of the lot from which stock was excluded was able, with a clear conscience, to go ahead and cut out what trees he needed, knowing that a new growth was coming right along.

CROPPING DISPLACING PASTURAGE.—Coming to the cultivated fields we find the old style of pasturing somewhat on the wane, but not disappearing as rapidly as we could wish. It is so easy to open the gate or to let down the bars if feed becomes, that it is difficult to interest many farmers in the problem of soiling crops. There, too, the shiftless farmer can always kill off or sell off surplus stock when the pasture falls short of the demand. However, the custom is so old, and we are really so conservative, that perhaps a change should not be expected in a short time. We must recollect also that soiling involves more labor, and the labor question is very much alive at the present time. These things will work out their own solution, with the little best we can do to aid. In this spirit let us look at a few of the points bearing on the question.

Given that the soil is in good tillable shape, or can be put in such shape, is there any question as to which method, pasturing or soiling, gets the most out of a given area? Let us, for argument's sake, take a ten-acre field; in which way can we get the more from it, by direct pasturing or by growing on it green feed continuously throughout the season? Let us consider both cases.

PASTURING.

LABOR.—The direct pasture method is simple and entails little labor. The stock requires only passing care. By this method the produce eaten is returned directly to the soil without cost of men, horses, and machinery. There is little trouble in caring for stabling quarters.

YIELD.—We must remember that the manure dropped by the stock deprives the animals of a certain percentage of the growing area. We are familiar with the hummocks all over an old pasture, where there are bunches of long grass that the animals do not care to touch. Another evident loss is the destruction of a portion of the growth by trampling. Also we know that while cattle do not graze very closely sheep and horses bite so close to the root that the grass, if not destroyed, is severely checked. The point we wish to make is that pasturing is wasteful of even the possible grass yield.

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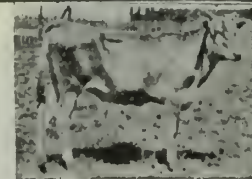
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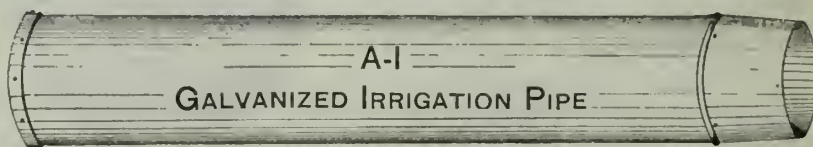


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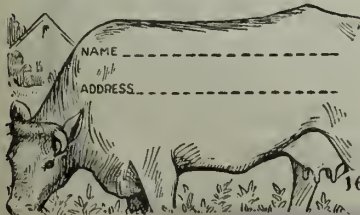
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of the old-time pasture is the exposure of stock to burning sun, storms, and insect pests, thus reducing the amount of flesh put on or lessening the amount of milk given.

SOILING.

When we speak of the soiling method we must have it understood that a certain amount of space for exercise is included in the scheme. Given this, the method calls for stabling and feeding of the stock, the feed probably being cut from part of the area that would otherwise be devoted to pasture. The method may be considered as follows:

LABOR.—It must be admitted at once that the soiling method calls for more labor and that the matter of securing competent help is keeping the farmer awake at nights. The answer, in part at least, to this is that soiling means more intensive farming, the covering of less ground, and a profit ultimately far in excess of the charge for extra labor.

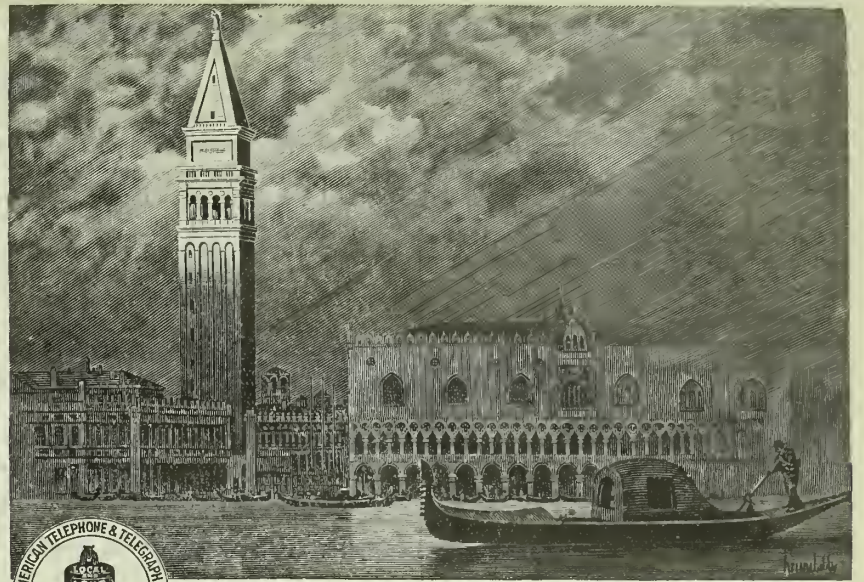
YIELD.—It is scarcely a question for argument that a given area will produce more feed if cultivated and the produce cut and fed to the stock in stable—this in comparison with the old method of grazing. We have only to consider that cultivation means increased yield, that rotation aids in the good work, and that there are more productive crops than grass, to see that the soiling method must secure greater returns from the soil. In addition to this we must repeat that a certain amount of the possible yield as pasture is destroyed by trampling of stock.

PROTECTION.—Under the soiling method the animals are kept indoors when it is advisable to keep them there, and allowed out for exercise when they need it. In this way they are sheltered from the hot sun, from storms, and particularly from horn flies and other insects. Few of these insects will follow the cattle into the stable, and screens will keep them out fairly well. It should be an interesting experiment to test the actual loss in milk from these insect persecutors of the cattle.

MANURE.—When the stock is fed indoors the manure is saved and protected from leaching, and is applied where it is most needed and when it is most needed. It is not left here and there to be a nuisance, to be a breeding place for flies, and to lose its fertilizing value from exposure.

VARIETY.—A change of feed is desirable and economical, and, viewed from this point, soiling completely outclasses pasturing. Seldom has the farmer more than one kind of pasture at his disposal, while by the feeding scheme he may secure ample variety. At the Nevada station we have in view for next season possibly something like this: Winter rye and hairy vetch (mixture), sown this fall; peas and oats (mixture), cut green; alfalfa, from the regular meadows; millet, possibly as a catch crop; corn, fed from the field. The foregoing is only a suggestion; the scheme offers many solutions depending upon opportunity and wish.

Soiling is past the experimental stage; its value has been demonstrated many times, and it is only a question of time and education until soiling almost entirely supersedes pasturing, unless it be upon waste land or ranges or in a possible rotation. Nevada, with her areas restricted by irrigation necessities, cannot afford to devote so much of this irrigation space to pasture. Her tillable soil is too fertile and productive to allow it to be treated in this wasteful manner. Pasture has its place and conditions modify contentions, but the broad statement that there is too much land in pasture, can be made without refutation. Reno, Nevada.

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Live Stock Notes and Comments.

[By Our Associate Editor.]

In another column will be found a summary of the points which the State Dairy Association wishes to have remedied in our State law. These bills have been given the best kind of consideration by practical dairymen and are just about what they ought to be.

What the legislature will do is another thing, but we notice that freak dairy legislation is being suggested from all sides, especially by people who know very well what a bacterium looks like through a microscope, but who are not very familiar with a dairy cow. One thing we are sure of, and that is that the laws passed will be worth while, for the legislature will know the difference between bills prepared by practical men and by theorists, and would sooner please the dairymen than the theorists. The more that the dairymen let the legislators know of their interest, the better the final bill will probably be.

For the bill prepared by the State Veterinarian, which Mr. Carver, secretary of the Dairy Association, takes exception to, we are not prepared to speak. The plan for fighting tuberculosis that has been practiced by the State Veterinarian

during the past year does, however, avoid all of the evils of compulsory testing and takes advantage of all the merits that the test has, whatever they may be. If the proposed law follows the lines of practice, it will not go far wrong.

As a matter of fact, with the dairymen and creamerymen with one dairy bill, the State Veterinarian with another, and several city people with others that are sure to be rather interesting reading, there ought to be lots of fun in being a legislator.

EXPOSITION INTEREST.—What has been said of showing your interest in live-stock legislation applies with greater force to the 1915 Exposition than to the legislature. Every successful breeder in California is exerting himself to make the best possible show for 1915; invitations are being sent to Eastern breeders, and they, individually and collectively, are making preparations like those of Californians.

This, however, is not all it should be. The interest should be shown directly; all should not be left to directors and commissioners to prepare for the show. There are lots of things to spend money on besides live stock, and the directors

are going to make expenditures depend upon the interest that is displayed in the different departments.

We should have permanent buildings that could be used year after year, after the Exposition has gone, to promote the

interests of California live stock, but the buildings are but temporary. The whole racing circuit for the Pacific Coast will be discontinued during 1915, so that the Exposition can get the benefit. That shows what horsemen think of the Expo-

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sition and what support will be given to it, and yet when Livestock Commissioner D. O. Lively is out of the State, as he often has to be, there appears to be no representatives from live-stock associations or others especially authorized to see that the best plans for live stock will be carried out, and the outlook for harness horses is in doubt.

In spite of the interest that horsemen have shown in dispensing with the circuit for 1915, and in other ways, anything like final plans have not been decided upon, and an important matter regarding the track had to be laid on the table until Commissioner Lively would return. When he does return, his influence alone will be insufficient to get the support the subject should receive unless the stockmen themselves show the interest that they should. We know what we want, and the only way to get it is to show that we want it.

GLANDERS RECOMMENDATIONS.—The recommendations for changes in the methods of controlling glanders made by the State Veterinarian look reasonable. Glanders ought to be eradicated, the expense is not excessive, eradication is quite feasible, and the saving to the horse and mule owners would be very great. Even the loss to the owner of affected animals by their slaughter is not as great as it might be, as the life of a glandered horse is generally more or less limited, and he is a source of infection to all animals with which he works.

Still, the mallein test for glanders is rather unsatisfactory, and the present law is even more unsatisfactory. The law says, "Kill the reactors." The owner often is justified in saying, "Not on your life," and the courts sometimes are justified in saying so, too. This may permit glandered horses to spread the infection, but the State Veterinarian, by law, can do nothing but order the animals shot, while the law may yet prevent the shooting.

According to the amended plan, animals showing symptoms could be shot, which is right. Horses not showing the symptoms, apparently in good health and fit for hard work, although reacting to a test, could be kept and worked under conditions which would prevent their spreading the disease. This would give the owner practically full use of the horses while they were fit for work; it would protect sound horses; it would permit slightly affected animals to recover, if they could; it would make due allowance for shortcomings in the test and in its application, and it would remedy an unsatisfactory condition of affairs.

PERCHERON SOCIETY FLOURISHING.

The continued growth of the popularity of the Percheron is indicated in the amount of work done by the Percheron Society of America in the year ending October 31, 1912. During that time 10,132 certificates were issued, or about 2000 more than in any previous year.

Of the animals recorded, 8,236 were American bred, and 1,896 were imported. American bred stallions numbered 3,785; mares, 4,451. Imported stallions numbered 1,231, and imported mares, 665. These figures are more than encouraging in showing the progress that American breeders are making.

The Society has also a membership of more than 4,600, and besides does business with 2,400 odd men owning registered animals, but not yet members.

A freak calf without eyes, tail and one or two other organs was born, on the dairy of Frank Pool, Scotts Valley, recently. The animal was alive, but was killed to prevent unnecessary suffering.

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Getting a Cow Through Calving.

At the last meeting of the Oregon Dairyman's Association, C. C. Dickson (son of C. C. Dickson, mentioned elsewhere) gave a talk on dairy practice from which we take his account of how he handles his Jersey cows in preparation for calving and afterward. He claims however, that his process must be followed with constant watchfulness:

Generally a year's work is taken as extending from calf to calf, and statistically it may be; but when a cow has given milk up to, say, two months of her next calving—if she is persistent—the wise handler dries her off and handles her with an eye intent only with the returns expected from her next freshening, so that in reality from the feeders' standpoint the lactation period is really from drying off to drying off.

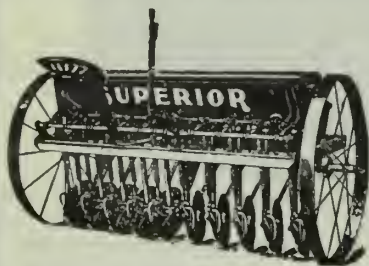
FEEDING AND DRYING OFF.—Presuming that the cow is in proper flesh at this time the process is easy. Formerly, we used to consider it necessary to feed nothing but a limited quantity of hay; but since I purchased a copy of Professor Eckles' book, "Dairy Cattle and Milk Production," which is a classic on dairy-cow management written by an earnest

seeker after truth who has kept close to his herd, I am changing my methods, giving up the common method of milk, milk, milk. I am beginning to dry up a cow rather by the process of not milking her than by wearing her strength down by lack of food so that gradually the milking function will be retarded with the rest. A good persistent cow (of the Jersey breed which I handle) will give two gallons or more of milk a day when it is time to dry her off. In the spring, on grass, I simply cut off the grain, and in the winter reduce the green feed. At the end of about three milkings I relieve the udder, but by no means milk clean; I repeat in a couple of days, then in about three days. If the cow is slacking off in good shape I milk her out clean and then let her go, or, if not, I put off milking out clean for another time. When she is milked out clean I don't milk out any more, but take the precaution to feel of her udder twice a day to see that there is no inflammation setting in. A cow giving ten pounds a day or less needs no attention except the looking over twice a day, and when she gets down to ten pounds a day a better cow needs no further care, except the watchful eye of the master. When a cow is just about fully dry I strip out what she has. By this means the heaviest, most persistent milkers are shut off without difficulty at not longer than ten days. The treatment may seem heroic; and possibly it is. I know truly that it is hard on the nerves for the first few cases; but there has not been the slightest trouble with the udders, either when going dry at the next freshening, with the great benefit of having the digestion running along smooth and unchanged.

GETTING READY FOR LACTATION.—Above this a hundredfold is the flesh and the strength. The veterinary profession made a wonderful gift to the dairy herdsman when it gave him the air treatment for milk fever. It opened up a new era of dairy cow conditioning during the dry period. It made possible a new level of individual and herd production, for the herdsman makes up in his mind a mental picture of the condition of his charge that he wishes her to be in at freshening. His whole management is but a shaping to this end. In all the year's work there is nothing that takes so much care, such a knowledge of the individual. He must map out in his mind the year's work in hand, the probable yield, the feeding capacity, and the various peculiarities of her milk giving. If there is any one period more than any other in the whole animal husbandry where "the eye of the master fatteneth his cattle" it is surely during the month preceding and the month following the freshening of a really great cow. Some of the older heads could doubtless draw on their experiences for a half day's talk along these lines. But besides being the time for the toning up, or rather in its place, in the ordinary commercial work, this is also the rest period. "Getting the grain out of her system" is a homely phrase which describes this perfectly. Even when a forced test is to be made the dry period is usually extended so that a rest of about the same length of time is given before the feeding preparatory to calving is started.

ARRANGING THE FEED.—Care is taken to gradually increase the proportion of green feed, so that the cow is quite loose at freshening time, tending to reduce the natural fever, and rendering calving somewhat easier. This also renders milk fever less likely. Now, among skillful handlers there is quite a little difference of opinion as to some of the details of

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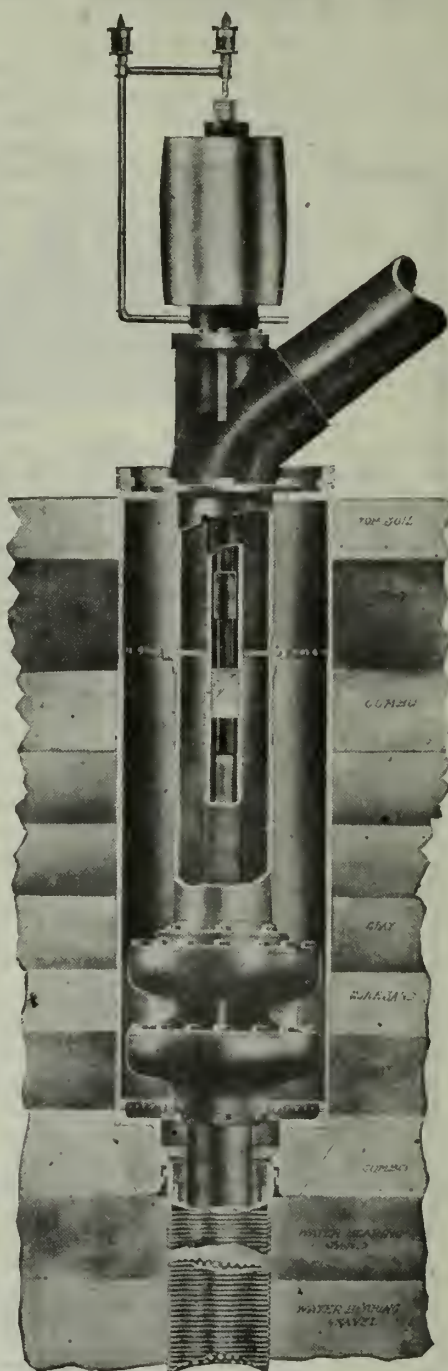
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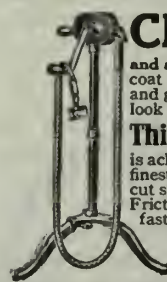


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handling after calving, and what follows is what I have picked out for my own use. It coincides, partly, with the practice of others; partly it is original so far as I know. The general idea is that, for one certain milking period each individual has a certain definite production at which she will give the best results, and this is always pretty definitely determined by the time she freshens. To not feed enough to keep her up to this is to lose a part of the feed necessary to maintain the body. To feed more than enough is but putting feed out that will not bring in proportional returns. What is the use of keeping a cow and not getting full returns from her? What is the use of feeding so much that the last part of the feed does not bring a full return? Yet how are we to tell when we have struck the happy medium? By asking the cow, which, however, is not as easy as it sometimes seems.

Very little is known as to what it is in a cow that makes her give milk. Prof. Eckles says that it is something in the blood, and gives good grounds for his belief. Beyond this, he claims that a cow in good flesh has more of this stimulant than she would if she were thin. Moreover, a good cow will reach her natural yield and hold it for a time no matter how fed. He cites the case of a Jersey that he fed just enough to maintain her body for a month. At the end of the month she was so weak that she could not stand unaided—and yet she was milking heavily.

Now it is never good to feed a cow much grain while she is feverish after calving, and then the grain should be increased but slowly; so that it is easy enough to let the milk yield come to its maximum and then fix the grain ration so as to keep the cow up in health and flesh. It is usually the case in this system that some flesh is lost in the first month or six weeks, but provision should be made for this during the dry period.

KEEPING UP THE COW.—There are many different tables telling the exact ration between a pound of milk of varying degrees of richness and the grain required to keep the cow at an even weight. They average somewhere around one pound of grain to every three pounds of milk of average richness. In practice, I find that with our milk testing something over five per cent on the average the ration is not quite one pound of grain to four pounds of milk for the heavy yields. For a yield under fifteen pounds per day no grain is needed. It has always been my feeling in watching other herds that one to three was a little too heavy.

At one place or another I have referred to the flesh that a cow should carry. No two individuals seem to do their best at the same flesh, although mostly all do best when close to what may be termed

average condition. As nearly as I can set it down on paper I test my cows for it as follows: When they freshen they should have quite a padding of flesh and the flank should be fairly full, fairly well up to beef condition, as it is taken for the dairy stuff. At the end of six weeks the flesh should be quite a little reduced. There should be some flesh over the body, but the spine over the withers should be showing plainly, and the hips should stand out nearly but not quite clean. The fullness of the flank should be retained so that it appears to be about half as full as it was. For two or three months the condition should hold about the same and then after being bred there is a natural slow tendency to lay on flesh until the end of the milking period. Now this only approximates the general average—some animals are thinly covered naturally, others are thickly covered some are smooth and others are angular. Even "the eye of the master" makes a certain decision only after an acquaintance with his charge.

BLACKLEG PRACTICE.

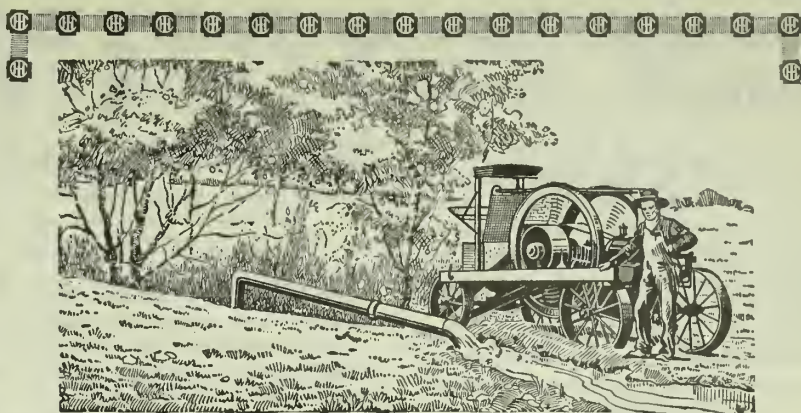
To the Editor: On reading the article in your paper on Blackleg, I thought a little more information might be of value to some of your readers. The article recommends that calves under six months old should be revaccinated before the following Blackleg season. That is no doubt good advice, but I have had calves around that age die from Blackleg within three months of being vaccinated. I now use what is known as "double vaccine" which consists of two doses, a mild one to get the animal in the right condition to take the full dose which is administered two weeks later. This makes them practically immune.

I use this on all my young stock now and feel safe in turning them into an infected pasture. The Cutter people who advertise in your paper put out this form of Vaccine. The extra cost is practically all in the extra handling.—EDMOND WYNDHAM, Redding.

JERSEY SHORTHORN CROSS.

To the Editor: If I cross Registered Shorthorns with a Jersey bull what dairy value will the progeny have?—J. H. B., Hemet.

This makes an excellent cross. Even beef strain Shorthorns have lots of milking power if it is developed and the Jersey cross will bring it out in the progeny. The heifers have excellent milking qualities and give very rich milk. They also have a big frame and fine constitution. About the finest cows in Humboldt county were of this cross although Jersey bulls have been used so long that the Shorthorn blood is almost eliminated.—D. J. W.



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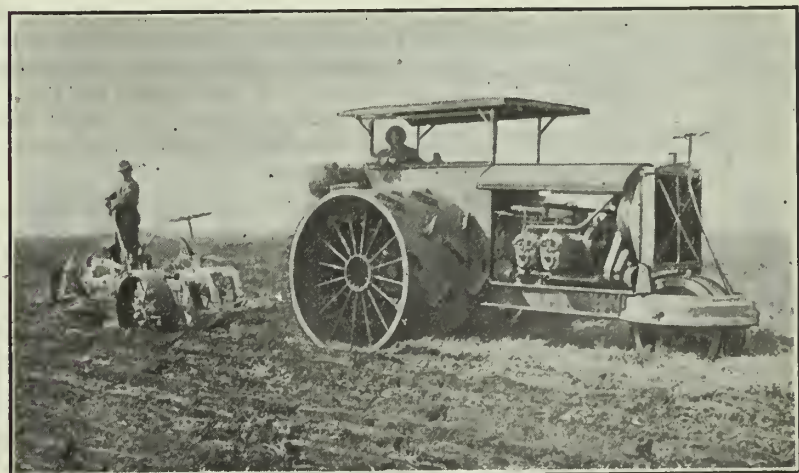
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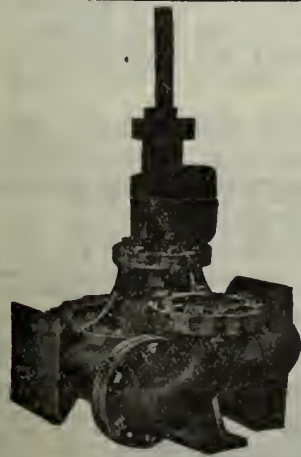
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Seasonable Hints for Poultry Yard.

[Written for the PACIFIC RURAL PRESS by
SUSAN SWAYSGOOD.]

Last week we spoke about the seasons for hatching; together with results of hatching at unseasonable times. During the last few days two more complaints have come in from farmers' wives who say that their hens have free range, plenty of alfalfa and grain, and yet just as the eggs should have come in lively the hens stopped to molt. Now just try

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THE MANOR FARM RHODE ISLAND REDS have won more prizes, cups and specials during 1912 at the big important shows than all their competitors. Utility or exhibition stock and eggs; also please remember if you order S. C. White Leghorn chicks from our 180-200 egg strain you will want more. Prices on chicks, \$10 per 100; eggs, \$5 per 100. Also Barred Rocks and Minorca eggs and stock. The Manor Farm, Petaluma, Cal.

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MAMMOTH BRONZE TURKEYS—Young and mature toms and hens, from large utility stock, at SPECIAL LOW PRICES. Good bone, full breasted, well marked, healthy and early maturing turkeys; write for prices. Geo. A. Smith, Corcoran.

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BARRED ROCKS only. Eggs, stock and chicks for sale. G. L. Hawley, Madera, Cal.

CROLEY'S LICE PAINT—for lice and mites on poultry. 25c the can.

what hatching later will do, anyway you can't be any worse off and you will, at least, have two months rest.

For those that raise the large breeds, especially the Rocks, early hatches are all right. Remember what was said last week was meant for Leghorns and the small breeds in general.

Barred and White Rocks, Orpingtons, Langshans and all of the Asiatics need a longer growing period. True they can be made to lay, and that without much effort, at five to six months old, but this early maturity is often at the expense of size, and is therefore to be discouraged.

MOVE ALONG.—When my pullets get about five months old I commence to move them around from one yard to another, not leaving them in any one place long enough to get fairly settled. The pullets don't like it but I do, because that keeps them growing and prevents them laying, and as I pay the feed bills if I don't kick they have no right to. At least that's the way I feel about it, and they don't argue with me, they only spend a little time trying to get back to their old quarters. A chicken is a whole lot like a tree, if it stays in one place very long it fairly takes root, and hates to be moved. That is why moving diverts their attention from laying for awhile, and if you fail to keep the moving habit, the pullets soon acquire the laying habit.

Now all the large breeds have a weight clause in the standard, so that anyone breeding pure bred fowls in the large breeds must get size and weight. These are best obtained by a longer growing season and by getting a good start before the hot weather comes on. It is very hard to make everybody understand these things, and just because they don't fully understand they jump at conclusions that have practically no foundation in facts at all. One lady wrote me last summer that she was changing from Leghorns to Orpingtons because she wanted something that would lay earlier and be large at the same time. As far as the laying earlier is concerned, it can be done, but just about two generations will reduce the size so much that she will have a new breed without a name.

CARE AND QUALITY.—There is not anything in the live stock world that can be spoiled so soon as poultry, perhaps because their lives are not very long at most and there are so many ways for neglect. I remember one time seeing a fine hatch of Brown Leghorn chicks with splashes of white in the plumage. There were about five hundred chicks and they were being brooded in two small brooders that accommodated them as day old chicks but were entirely too small for them at the stage I saw them. The owner while showing me the chicks berated the breeder he bought the eggs from, roasting him to a turn. After he got through, I told him that the breeder was a stranger to me, but that I hated to hear him blamed for what he could not help. Well, this man thought he ought to help it, but I said, "How can he control your brooding, for there is where the fault is."

The man was astonished and could not understand how the brooding could be responsible, but I showed him that by crowding the chicks in those two small brooders the chicks were bruised a little in places, and that wherever there was a bruise the feathers came out white, just the same as the hair comes white when a horse has been bruised. I told him to wait until the chicks shed their feathers the last time, before condemning the breeder, and he said he would, and also that he would let me know how they turned out. Some months after we met

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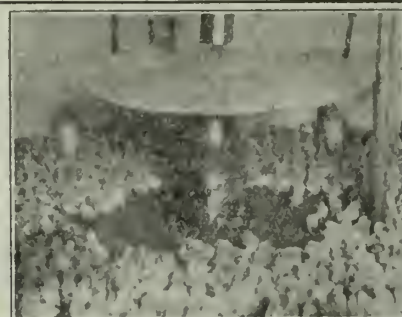
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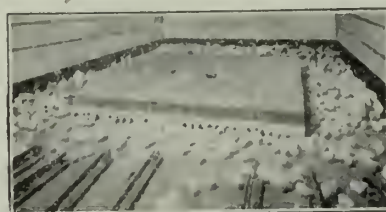
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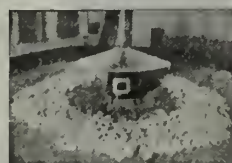
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By its use more and better chicks are raised, with 1/2 the labor, and no crowding; no chilling; no overheating. Write for a free catalogue giving full particulars about this wonderful method.

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PETALUMA, CALIFORNIA

and he told me my theory was all right for his hens were just as fine a lot of Brown Leghorns as he ever saw; I told him that what I said was not theory, but actual knowledge.

Theory is not any use only as a guide and up to a certain point in anything, and in raising poultry. It is a mighty poor guide at all; one ounce of practical working knowledge is worth a ton of theory, so I for one, don't use much of it.

Reason is the best guide, but few apply it just where and when it is needed. If my friend had used reason, he would have known that his chicks could not crowd and jostle each other in such small space without being injured; he would also have recognized the fact that the injuries would affect the feathers.

I have known chicks to be all bruised up until the skin was black from being taken in a stage over the mountains, every time the stage gave a lurch the poor chicks bumped each other and when they arrived at their journey's end they were pitifully bruised and died in a few days.

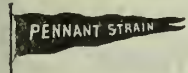
CARE IN SHIPPING.—But that could all have been avoided by proper packing, for I have sent chicks over the same route and every one lived and did well. And here is the way I did it: First, I lined a basket with nice, soft hay, putting a stitch here and there to hold in place. The bottom was well spread with the same material and then I made three compartments, putting thirty-five chicks in each.

S. C. WHITE LEGHORN BABY CHICKS.
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Over the chicks I put a soft, warm cloth just low enough to touch them when sitting down, and over that a light cushion of feathers. Of course it was a little trouble, but I was more than repaid in knowing that the chicks went safe and sound to their destination. As long as the motion lasted it is very probable that those chicks sat perfectly still under the soft cover. Something to brood under is what a small chick craves, it is nature urging it to be natural and every time we work with nature we are going to win.

The other chicks had been sent in a patented box guaranteed to be ventilated and scientific, but science did not figure on mountain roads and California stage drivers. Twice I got repeat orders from that man and the chicks always went safe, that's where home-made, common sense beat patented science. Gumption, so far as I know has never been patented and there is no place where it is needed more than on the farm and especially in the poultry yard.

The show season is getting near the end, but the biggest show on the Pacific Coast comes off this month, and I expect to be there, so will be able to give our readers a good account of this midwinter show that covers over two acres of ground in a tent.

Mrs. J. J. K. La Verne asks the cause of bowel trouble in young chicks, and what to do for it?

Bowel trouble in very young chicks is usually caused by a chill. It is very hard for us here to believe chicks get chilled because not feeling the cold ourselves we forget that chicks have really undergone a violent change from incubator to the outside atmosphere. In the Eastern States, great care is exercised in moving chicks from incubator to brooder even, and also in seeing that the brooder itself is warm and fit to receive the chicks. But we are, as a rule, very careless in these little matters and the chicks feel the change and suffer from bowel trouble. Sometimes, of course, the trouble may be traced to the food, but more often it comes from a chill at some stage of the proceedings. The best way to cure it is to remove the chicks to new ground at once, or if in a brooder, clean it out well and spray with some disinfectant. Boil all the water that is given to the chicks and feed boiled rice once or twice a day in which a little cinnamon is mixed. Do not put in too much or they will not eat it, keep all meat away and just feed dry chick feed and boiled rice. No oatmeal or any other cereal but the rice, if chicks won't eat it, feed dry chick feed and boiled water and a little lettuce.

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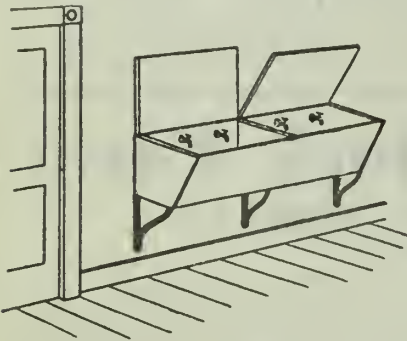
Home Improvement, No. 9.

A Private Sewer System.

[Written for the PACIFIC RURAL PRESS.]

The running water which in a previous article on the plumbing of the country home it was suggested should be brought into every house in the country, necessarily presupposes some system for the disposal of that water. As a matter of fact every house should have complete arrangements for the sanitary disposal of kitchen and all other wastes in order that the health of the family be protected.

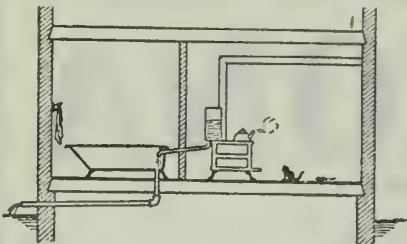
If there is no sewage system and all wastes are simply thrown out on the ground, disease is invited to be present. Kitchen wastes mean flies, night sewage means typhoid germs at some time or another, flies and typhoid germs mean typhoid in the family, and even if the



Cover for Wash tub.

typhoid does not develop, other sicknesses may, and throwing wastes out on the ground is an awfully poor way of doing things at the best of it.

Once running water is brought into the house, and naturally a water closet installed, it goes without saying that all sewage will run out in the sewage system, is a great convenience, besides being cleaner and more healthful. Running water, or a private sewage system, presupposes that there is lower ground than where the house is, and it is a rare place



Bent the Water.

that the house cannot be located higher than some surrounding land, and a poor designer who does not get a house located with some drainage away from it.

SEPTIC SYSTEM.—Sewage should be taken away from the house in a septic system, the most reasonable and sanitary system that there is, and one very inexpensive and easy to make. How the main feature of this is arranged is shown in the accompanying diagram.

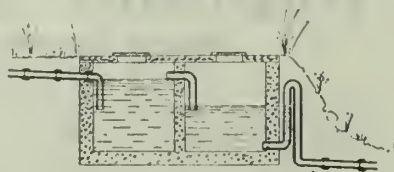
The size of one of these tanks depends upon the number of persons using the system, or perhaps say, the amount of water to be disposed of, which means the same thing. It is usual to allow four cubic feet of space in each tank for every person using the system. Nine persons therefore will require that each tank contain 36 cubic feet of space, or to be three feet square by four feet deep. For a family of four or five, two hogsheds set in cement will be large enough. The shape of the tanks are of no special importance.

Both tanks are to be the same size

and are placed side by side. The first tank is where the first great activity in sewage change goes on, but tank No. 2 is necessary to have the final stage of sewage change properly accomplished. These tanks are located a little distance from the house and connected with the plumbing by glazed terra cotta pipes with well cemented joints.

A cast iron pipe leads from the terra cotta into the first tank and ends in an ell which projects about 18 inches down into the tank. The outlet of this, as can be seen in the diagram is always closed by the water in the tank.

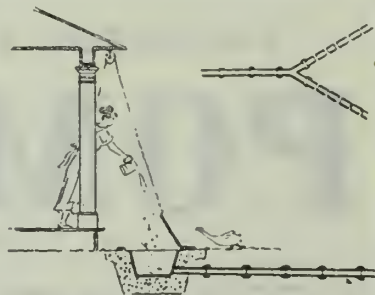
On the farther side and near the top of the first tank is another pipe leading to tank No. 2. This also ends in an ell, which sometimes is covered and other times not. The outlet of tank No. 2, however, is at the bottom, although the pipe that removes this water is in the form of an inverted "Y", with the top, where the bend comes, very nearly but not quite as high as the pipe that runs into tank 2. The farther side of the



The Septic Tanks.

outlet pipe runs down to a lower point than the level of the tanks, and from there has a gradual slope so that it goes off by gravity.

OPERATION.—By the time the sewage gets through all this it is in liquid form entirely so that the work of the final outlet pipe is merely to get rid of liquid. This outlet pipe should run along on a gradual slope until it reaches within about a foot of the surface of the ground.



For a Little Waste Water.

When it reaches this point a "Y" joint of glazed terra cotta is put in and from each arm a line of ordinary porous drain tile laid. These lines of tile must have a very gradual slope, say one-fourth inch in 30 feet. Each line should be about 30 feet long in light soil and 75 or more in heavy soil.

The tiles must be placed about a quarter of an inch apart so that the liquid will wash out between them, and rocks, shells, or some similar material placed over each joint so as to prevent the dirt from sinking in and blocking the drain. The soils will then absorb all the liquid sewage without injury to soil or sanitation.

BACTERIAL ACTION.—It is the action of bacteria that cause the sewage to be disposed of so well in a septic system, and these are especially active in two places, first in tank No. 1, and secondly when the sewage reaches the soil between the joints of the drain tile.

The first lot of bacteria can work properly only without air, or with very

little. Thus the tanks must be always tightly closed on top. The bacteria in this tank reduces all solids to a liquid condition.

The bacteria of the drain can work properly only with lots of air, and California soils, being naturally so dry, open and well aerated, are ideal for this purpose. The reason why the second tank is needed is to give the bacteria in the soils plenty of air. If the sewage would flow as it came from the house it would keep the joints of the drain all uniformly wet and it would drown out the bacteria except a few on the surface. As a septic tank discharges only about once a day the sewage has a chance to dry out in the soil, the bacteria gets a lot of air, and has plenty of time to work in as well as an excellent appetite while they are working.

The sewage when they get through with it is, as previously stated, perfectly harmless. It also does not injure the soil, and as it contains considerable fertilizing material it is excellent for plant growth. It is entirely satisfactory to have the drain run through vegetable garden, alfalfa or orchard, provided plowing is done so as not to disturb the tile. If, however, there are trees or berry vines whose roots can get to the tile, it is very advisable to have the farther end of the drain open so as to allow a free circulation of air to prevent bunches of roots from forming and blocking up the drain.

INCIDENTAL MATTERS.—Provided no such septic system is built, there is no running water in the house, an ordinary, primitive closet is used, and kitchen wastes are thrown out on the ground,

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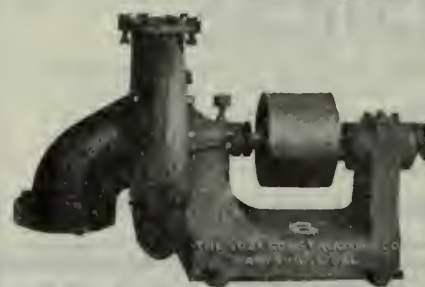
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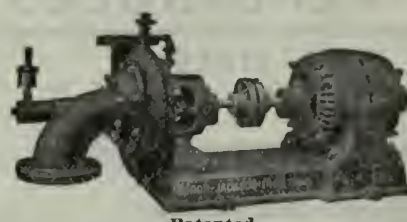


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there are still certain simple, inexpensive and convenient arrangements that can be provided to protect health and further convenience. It is a fortunate thing that California soils and climate are such as to work against typhoid development. The warm, dry air usually quickly dries up wastes thrown out, before even the flies have much of a chance to breed. The deep, open soils containing lots of lime quickly purify everything that sinks into them, and further, the wells from which drinking water is secured are almost invariably out of the reach of surface contamination except possibly during heavy and long continued rains. Nevertheless some small system for disposing of wastes is greatly desirable.

This will also be in the form of a line of drain tile leading from the kitchen door, or some convenient place, out into the garden or elsewhere. This is to be laid like the drain tile of the septic system, glazed terra cotta being used until it does get to the garden.

One of the illustrations will show just how this is to be started. The "Y" in the upper part of the illustration is not necessary on this, but shows the way the drain of the septic system is planned. The stem of the "Y" is glazed terra cotta, well cemented together, to the arms of the drain tile.

The starting points for this kitchen drain is in a small concrete hopper with a cover worked on a hinge. To the front of the cover is attached a cord which runs up over a pulley and loaded on the other end with a small counterpoise. Then when the housewife wishes to throw out some waste water she pulls down a bit on the cord, the cover opens, and the water is thrown in. It is well to have the pump or some other water supply attached to this so that it can get a little flooding now and then. Naturally no solid matter of any size can go into this system or be disposed of if it does go in.

EARTH CLOSET.—This still leaves the matter of a closet still open and for that the following plan is greatly to be desired for convenience and sanitation.

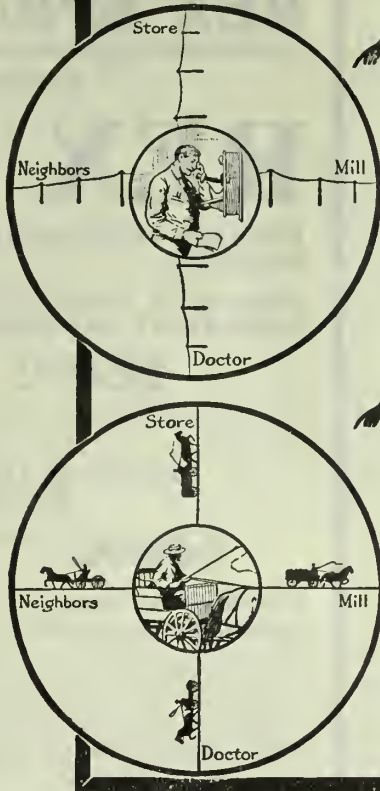
Saw a barrel in two, or have two big boxes attached to runners so that the horse can be hooked on and haul them off as he would a sled. They are to be of a size that will enable them to be run in under closet so that all sewage can drop into them.

Before they are put in place a layer of light soil is to be thrown over the bottom and a box of soil is always kept at hand in the closet so that some can be thrown over the sewage at once. This soil will absorb all odors and prevent flies or other insects from breeding. Then when it is time to remove the sewage, a horse is hooked on, and hauls it off to the fields. The soil or sand is an essential part of this proposition, as it will keep things much cleaner as well as more healthful.

Thus all wastes can be provided for. Water in the house is a great thing for health, comfort and convenience. Water in the house means some sewage system, and a septic system is simple, cheap, easily constructed, and very effective. If running water is not brought into the house, the other two arrangements described should certainly be installed.

[NOTE.—The above will answer an inquiry regarding the disposal of sewage. The illustrations of the location of bathtub in relation to stove, and the moveable cover for the washtubs should have accompanied the article on Water in the House, December 21, 1912. They may just as well go here as being the first part of the system of Water in the House, while the other two illustrations deal with the second part.]

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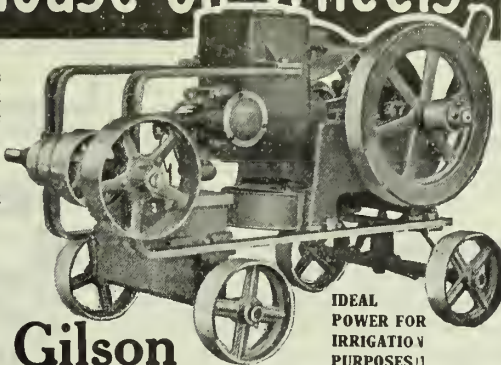
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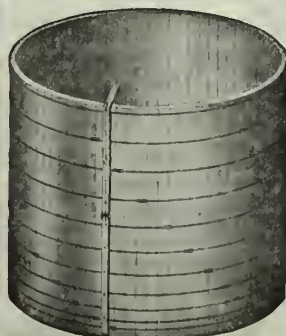
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Gilson "60 Speed" Engine

Complete with Line Shaft, Truck, Pump Jack and Interchangeable Pulleys capable of 60 changes of speed

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IRRIGATION
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PIPE & TANKS



TANKS FOR
WATER, OIL, WINE,
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Continuous Stave Pipe 12 in. to 12 ft. shipped knocked down.
Send for Printed Matter. New Pipe Catalogue in Preparation.

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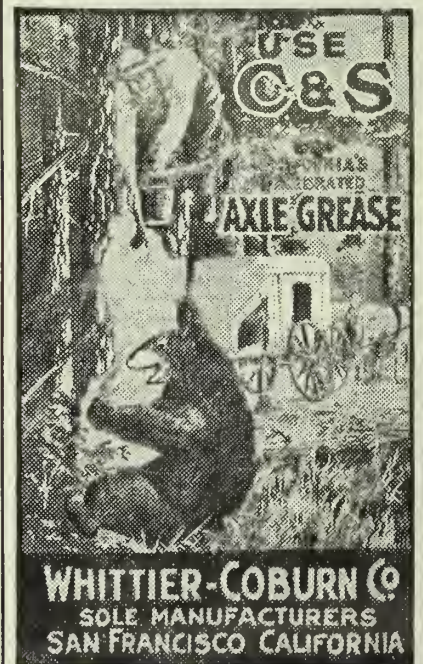
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FRUIT AND VEGETABLE BOXES OUR SPECIALTY. WRITE FOR PRICES.

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California's Celebrated Axle Grease

Has helped to move
California's Loads
for 50 Years.

It will Help Yours
To Day

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Write for our Guide to Inventors, sent free on request, containing 100 mechanical movements and full information about Patents, Trademarks, Copyrights, Labels and Infringements.

DEWEY, STRONG & CO.,
911-916 Crocker Building, San Francisco.
Established 1860.

HURRAH! HURRAH! HURRAH! THE TUNNEL IS FINISHED

The Oakland and Antioch Electric Railway will run regular trains from Oakland to Lafayette, Walnut Creek, Concord and beyond within thirty days.

Transportation is all we needed in the beautiful

MOUNT DIABLO COUNTRY.

We have everything else.

EXCELLENT LOCATION.

Just Back of the Berkeley Hills. Commuting distance from Oakland and San Francisco.

PERFECT CLIMATE.

Never too warm—Never too cold.

BEAUTIFUL SCENERY.

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BEST OF SOIL.

You can grow anything grown anywhere in California.

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Perfect Home Conditions.

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The Coming Home Place for those employed in San Francisco and Oakland.

Two years will treble the population of Lafayette, Walnut Creek and Concord. Hundreds will Live and Prosper where None live now.

What does that mean to Values.

Go Anywhere.

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What has Transportation done to

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The same will happen here.

This is your opportunity.

Our terms are very liberal.

Anyone can pay them.

You can buy a Lot, an Acre, or anything you want.

Don't wait until the Road is running its cars.

Make your selection now.

Watch the MOUNT DIABLO COUNTRY grow.

Our Valley is the Last Section within commuting distance of Oakland and San Francisco to be opened for Ideal Homes, and the LAST is the BEST.

If you want to Live and Enjoy Life.

If you want to cut the High Cost of

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INVESTIGATE OUR LANDS.

Call at office or write

R. N. BURGESS COMPANY,

734 Market St.,

San Francisco, Cal.

Branch Office—1538 Broadway, Oakland.

Agricultural Review.

(Continued From Page 110.)

New Bug Man.

The U. S. Department of Agriculture fruit work in the Santa Clara valley, which until recently was under the direction of Paul R. Jones, who resigned several months ago to go into business with a large manufacturing company, will be in charge of A. G. Hammer, assistant in deciduous fruit investigations. Mr. Hammer was formerly connected with the thrips work in California. His duties will extend all over California fruit districts, although the headquarters will be in San Jose.

Raisin Conditions.

The seedless varieties of raisins are said to be about all cleaned up. One big packing company is out for a few tons of the 1913 crop to start sales to the jobbers and is said to be offering 4 cents for the coming crop and 3½ cents for the three following years. The market for Muscats continues dull all over, with a few sales of from 2¼ to 2½ cents in the sweatbox. Wine grapes are also dull. It is said that a proposition has been made by the association to contract for five years at \$11 per ton if half of the vines can be taken out.

Berry Growers' Union.

The annual meeting of the Sebastopol Berry Growers, Inc., was held January 20. The past year was very prosperous. The Loganberries brought \$80 per ton for the chipping berries and \$58 for the canning grades, with other berries at corresponding figures. Sebastopol apple men this year shipped out about 425 cars. There are said to have been 3,000 cars of apples shipped from the Pajaro valley this year, about 500 cars of which are held in the State in cold storage.

Prune Conditions Improving.

The demand for prunes is said to be increasing appreciably recently and buyers are out and around in the Santa Clara valley more numerous than a while ago, although they are offering no more than before, except for the large sizes. Both from the East and in the orchards the larger sizes seem to be in demand, and it is rumored that an effort is being made to corner these. The best kind of a crop is hardly expected in the Santa Clara valley next fall. The orchards have borne heavily for two years on scant moisture supplies, and the way the rain held off until a couple of weeks ago made a number of growers think we were in for another dry year, so they pruned their trees very heavily.

Jastro Re-elected.

H. A. Jastro, of Bakersfield, has been re-elected president of the American National Live Stock Association. Denver was selected as the location for the next annual convention. Resolutions were adopted endorsing the bill for Federal supervision of the open range, urging the Government to protect American cattlemen in

REX SPRAY MATERIALS

SPRING SPRAYING WITH

REX

(Lime and Sulphur Solution
Arsenate of Lead)

DOES RID YOUR ORCHARD OF INSECT PESTS AND FUNGUS TROUBLES.

DOES GIVE ADDED VITALITY THAT PRODUCES FOR YOU MORE FRUIT AND MORE GOOD FRUIT.

Rex Solution

Compounded after our own distinctive process is so put together as to give the

MAXIMUM AMOUNT OF SULPHUR IN ITS MOST EFFICIENT FORM

Rex Ingredients are processed—
Not simply thrown together and boiled.

For Scab—for Scale—for Peach Worm—for Curl Leaf—for Red Spider—for Grape Mildew—for numerous other troubles.

As an insecticide—fungicide—vitalizer there is no other solution producing results equalling those following the proper application of REX applied at the proper time.

REX ARSENATE OF LEAD has for years killed every worm in hundreds of orchards. It will do the same for you this year. Try it.

Spray This Spring—

Write, giving us the number, variety and kind of trees under your care, telling us what troubles you have. Spray Anyhow. It Pays.

Our Motto—"Rex must be the best. The King of all Spray Materials."

CALIFORNIA REX SPRAY COMPANY
Benicia, California

THE FARMERS' FRIEND —IS— A Friend to the Farmer

It is a book issued annually and is filled with new and practical information. The valuable reference tables will be very useful to you in your work about the house, the orchard or on the farm.

IT'S FREE

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607 Alaska Commercial Bldg.,
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Largest Manufacturers of
Fertilizers, Poultry Foods
and Bone Charcoal on the
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Write today for free
book of TREES,
SHRUBS, VINES and
PLANTS.
Mention this Paper.
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PORTLAND NURSERYMAN OREGON

LIME AIR SLACKED

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**No. 8 Combined
Horse Hoe and Cultivator**
cuts down the work of growing
corn, potatoes and similar crops.
Gives bigger and better re-
sults. Adapted for more
different kinds of field
work than any
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Strong, light, easy to
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Don't Feed Your Last Year's Crops Into Idle Horses This Winter

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Agricultural statistics show that farm horses average only about 100 full days work a year. The other 265 days time you have to feed them just the same—all for nothing.

You can't afford this expense—this waste—when fuel for the Avery Gas and Oil Tractor costs less than horse feed. And

Write for Sold on Approval Terms and Avery Tractor Book

that shows how any man on a small or large sized farm can farm with power. Tells about the little 12-25 H. P. Baby Avery Tractor built for small farms—pulls 3 to 4 plows; the medium size 20-35 H. P.—pulls 5 to 6 plows; and the big 40-50 H. P.—pulls 8 to 10 plows. Explains how the wonderfully "Light-Weight" of Avery Tractors enables them to travel on any ground in fit condition to be worked with horses and why they don't pack the ground and waste fuel. Shows why Avery Tractors are the simplest tractors built. Shows how Avery No-Man Automatic "Self-Lift" Plow does away with a plowman, saves hard backbreaking work and saves time. Tells about the Avery Company's Policy of Selling on approval at low prices and backing up with strong guarantees. Write today for 1913 complete Avery Tractor Book with Power Farming Facts and Complete Selling Plan. Address

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Tractor and
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or our jobbers, Balch, Carter Co., Oakland, California.
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Use \$2.50 worth of MOCOCO Superphosphate per acre now and increase your yield anywhere from 1 to 4 tons per acre. Richest Phosphorus fertilizer on the market. Gypsum is only a soil stimulant—contains not a pound of plant food—but 1 ton of MOCOCO Superphosphate contains 350 lbs. of actual plant food. Much cheaper than Gypsum in the end. Write for leaflet.

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ALFALFA Needs Phosphorus and Lime

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Agricultural Soils and Farm Lands.

Thirteen years' experience with the U. S.
Dept. of Agriculture as Soil and Alkali
Expert.

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Soil Surveys, Analysis, Fertilizers
Prescribed, Working Plans Outlined.

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YOUR SOIL

Any good chemist can make your
soil analysis, but ONLY THE EX-
PERIENCED can make proper use
of the results and give you any
profit from the money invested.

Investigate and learn what my
work has done for others.

R. R. SNOWDEN

Chemist and Soil Engineer,

320 Stimson Bldg., Los Angeles, Cal.

Mexico, protesting against the reduction
of the tariff on cattle, meat products, wool,
sheep and hides; declaring for a physical
valuation of railroads as the basis for
fair transportation rates.

More Dairymen Organize.

Another branch of the State Dairy As-
sociation was formed recently at Dixon,
Solano county. H. R. Timm was elected
president, Fred A. Hutton vice-president,
and Ward Watson secretary. Many of
those connected with the new organiza-
tion are engaged in the business of pro-
ducing certified, inspected, or ordinary
market milk.

Organization of the dairy interests for
the Panama-Pacific International Exposit-
ion has been furthered by the appoint-
ment by D. O. Lively of advisory com-
mittees to represent the interests of each
breed of dairy cattle. Among the appoint-
ments are: George A. Smith, Corcoran,
Jerseys; A. W. Morris, Woodland, Hol-
steins; and Charles G. Lathrop, Stanford
University, Guernseys.

Imported Stallions.

A. C. Ruby, of the firm of Ruby &
Bowers, importers and breeders of draft
horses, is visiting California. A carload
of Shires and Belgians was added to the
firm's stable at Davis. Mr. Bowers, Cali-
fornia member of the firm, says that they
have now at Davis over forty stallions
and mares and that they anticipate a big
trade this season. Recent sales of stal-
lions were made at Soledad, Salinas, Cor-
coran, and Bakersfield.

Hog Ranch Grows.

The Oak Grove Dairy Farm, Woodland,
has bought out the entire herd of Berk-
shires of the Four Oaks Stock Co. of
Woodland. This makes the company the
owner of one of the largest and finest
pure-bred herds of Berkshires in the
State. It has about 26 sows and six herd
boars, headed by Artful Masterpiece, the
1912 Grand Champion. Backing him up
are Ravenwood Longfellow 10th, and Ber-
ry's Combination, which are well known
for the kind of pigs they get. The com-
pany is working to make the best kind
of a record at the Exposition and is
on the way to be heard from there.

Two dairy specials are to be sent out
by the Agricultural Extension of the Uni-
versity of California in place of the dem-

EATON-PHILBRICK LABORATORIES

444 Market St., San Francisco

Chemical and Bacteriological Anal-
yses, Soils, Waters, Feeds, Dairy
Products.

ASK US FOR
QUOTATIONS ON HAY
BEFORE PURCHASING
YOUR NEXT CAR.

Gotshall & Nourse
RIPON, CAL.



THE CLIPPER

Will cut tall grass,
short grass and
weeds and do all the
trimming along the
fence, walks and
drives. If your deal-
ers do not keep them,
let us know and we
will send circulars
and prices.

CLIPPER LAWN MOWER CO
Dixon, Ill.

oustration train covering all lines of agri- have one of these trains sent over the
culture. Prof. Clarke may arrange to Santa Fe.

"The Name Tells a True Story"

Superior Beet Drills

Made in two styles—Plain and Fertilizer—with shoe or double disc
furrow openers, adjustable to plant 16 and 18 inches apart in the row,
four rows at a time. Spacing bars are furnished with each drill, en-
abling the user to make the necessary spacing without the use of meas-
uring instruments. These bars hold the furrow openers the exact dis-
tance apart, thus making the rows easy to cultivate.

The Superior Feed is especially adapted to beet seed and has wide
range of quantity. Agitators furnished with every drill. No "bridging"
of seed.

Gauge wheels can be used as press wheels if desired. Assure even
depth of planting.

Send for the Superior California Beet Drill folder. Read it and then
go to your local dealer and insist on seeing the Superior Beet Drill.

THE AMERICAN SEEDING-MACHINE CO., Inc.
SPRINGFIELD, OHIO

APPLES!

Large stock, varieties adapted to
California—Banana, Pearmain,
Belleflower, Rome Beauty, Jona-
than, Stayman Winesap, etc.

Write for prices, stating quantity.

PEARS AND APRICOTS.

Scarce this year, but we have a
good stock. Strong trees, \$25 per
100.

CHERRIES, PERSIMMONS AND QUINCES.

Money in all of these, \$15 to \$22
per 100.

GRAFTED WALNUTS.

A few hundred Placencia left.
Order quick.

VALENCIA ORANGES AND EU- REKA LEMONS, NOT FROZEN.

Everything else in fruits.
Everything else in ornamentals.
The oldest nursery in Los Angeles
County.
Write for our price list.

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MONROVIA, CAL.

FANCY GRAFTING WOOD FOR SALE

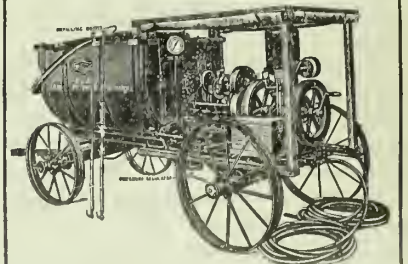
LUTHER BURBANK'S newest and best
varieties. Formosa, Gaviota, and Santa
Rosa Plums (best shipping plums grown).
Also his early Burbank Cherry—earliest
good cherry grown. his Standard Prune
(will dry 24 to the pound—dark, and fine
flavor; heavy bearer). His Sugar Prune
—fine dryer and shipper.
The new plum Vacaville, first blue plum
to ripen, large, fine flavor and shipper.
Imperial Prune (Felix Jellet strain),
heavy annual bearer, 20-30 to pound.
Robe de Sargent; large plums. The new
blue plum President, large, late, very fine.
For prices write H. A. BASSFORD,
Umlits Runcho, Vacaville, Cal.

EUCALYPTUS

We have our usual stock of high-grade
trees, to which we invite correspondence
of intending planters.

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Petaluma, Cal.



Bean Power Sprayers

DO THE WORK QUICKLY, THOROUGHLY
AND PERFECTLY AT A MINIMUM OF COST

Three outfits, differing chiefly in capac-
ity. All built for heavy pressure. The
various parts are readily accessible, and
when worn can be easily and cheaply
replaced.

The Bean Pressure Regulator does away
with all relief valve troubles, saves from a
fourth to a third the gasoline, and wear
and tear on engine and pump.

All Bean Power Sprayers have porcelain-
lined cylinders; bell metal ball valves that
cannot corrode, rust, or clog; direct ma-
chine-cut gear connection; underneath suc-
tion; iron well in tank, so that tank can
be easily cleaned and drained; and steel
frames, instead of wood. Power outfits
from \$137.50 up.

SEND FOR OUR NEW CATALOG OF HAND AND
POWER SPRAYERS, AND PUMP ACCESSORIES
BEAN SPRAY PUMP CO.
West Julian San Jose, California
Eastern Factory, Boreo, Ohio

HARDIE SPRAYERS



The Sprayer with the trouble left
out.

Power Sprayers, Barrel and
Bucket Pumps, Rods, Nozzles,
Hose, etc. Catalog.

THEO. POINDEXTER, State Agent
320 Market St., San Francisco.

SIMPLEX SPRAYER

AUTOMATIC—COMPRESSED AIR

Capacity, 3 gallons; weight loaded,
35 lbs. May be carried vertically or
horizontally. The Cheapest, Most
Practical, and Best Sprayer Made,
regardless of Name, Make or Price.
Send order for Brass, \$7.50, or Gal-
vanized, \$5.75. Try it for Ten Days.
We take all the Risk. Write for
valuable Sprayer Guide—It's Free.

HOUSEHOLD SUPPLY CO.,
206 Rialto Bldg., San Francisco.

The Home Circle.

When Order Is Home's First Law.

She was a charming little lady. Her trim gray coat and gown were perfect, with gloves to match, and a washbowl type of hat, black, trying, severe, attempted in vain its apparent duty of extinguisher over her delicately piquant face, where big brown eyes danced and the fresh rose came and went in transparent skin that did not seem at all out of keeping with the soft whiteness of her hair. She was the mother of a grown-up family and I had yet to find her out.

She began this day to chat to me of her home, in one of the conservative suburbs of Boston, where to say of a social aspirant, "She does not come from C— (naming the suburb), she does not come even from Boston," is to write her down nobody.

"My dear, such closets! The boys rebel because the drawing room is so small, but then I tell them to look at the closets. I believe men say women architects just plan out the closets first and build the other rooms around them with what space is left. I'm sure that's what I should do."

"And are you so domestic, Mrs.—?" I ventured.

"Domestic—I wish I weren't. I wish I could do something as you do—write or paint or sing—you do some of those things, don't you?" (I got in a nod edgewise as she ran on.) "But you see my talent is for housekeeping. I simply can't let it alone any more than you could your paint brush—if it is a paint brush that rules your life. My husband and the boys beg me not to take it so hard, and I don't think I am hard on them about it—only I have to have things just so."

"You mean it interferes with your social life?"

"Not at all, my dear, just the contrary. I enjoy society, I go out a lot. Those closets are really the thermometer of my mood, I assure you. Why, they are the making of my afternoon at the art club or my evening at the opera. For when my closets are all in order I am full of joy wherever I am. Then I go out, and I do have such a good time. You see, it is a passion."

"Was it always so with you?" I asked.

"It was this way. I can remember coming home one day from school and finding the house all in disorder. Mother had been unexpectedly called away, and there things were. I just resolved that that house should be in order before night; and so it was—though I had never made my own bed before. It came on me like that. From that time on, order was a passion with me, and I was always thinking and planning how I would rearrange things to make them more right and proper. It has stayed by me all my life. I am happy today, for I can't think of so much as a shoe brush out of place in my whole house. If there were I should run home quickly, I assure you."—Monitor.

Graceful Art of Being Interesting.

Arnold Bennett, in his latest book, makes the turning point in the career of the hero come when, instead of trying to frame a suitable reply to the wit of a clever woman, he puts a counter question.

"Really," she murmured, "you pick things up easily, I suppose?"

"Yes," he said; "do you?"

You must read the context to understand the effectiveness of this form of repartee, but it is suggestive to those

who would be interesting. Instead of relating examples of his courage or cleverness the hero draws out ideas by a series of simple questions—"Do you?" or "Are you?"

Of course, there is danger that one may develop into a human interrogation point. But one thing is certain, people like to be led to express their own opinions rather than hear those of others.

The woman who wishes to be interesting must endeavor, first, to throw upon others the burden of the conversation, and to be eager to hear what others have to say. No amount of feigned enthusiasm can fool the person with whom we converse. If we are bored we are bound to show it in some way.

I know two women, both of whom have attraction and charm. When people meet them they are drawn to them equally, but inevitably the younger woman loses her grip. Men rave over her at first, but in a short time grow cold. The older woman, on the other hand, keeps her friends as long as she will have them.

"What is your secret?" she was asked.

"It is because I love to hear what other people are doing," she stated. "I love animals and nature—I love to hear about politics, social settlements and church work. I love books, art and music, but I do not think these last are the only worth while things."

I have seen that little woman surrounded by a circle of children who listened with bated breath to her charming tales. Yet it was not always they who listened, for she drew them out with tactful questions, and they told their eager stories.

I have seen her surrounded by a group of boys and girls, all worshipping at her shrine. When she was with this group she had little to say, they were so keen on telling their own experiences. She heard of football, of fraternities and sororities, of spreads and of escapades without number.

Old men told her of their fishing and hunting; statesmen poured into her ear the secrets of legislative bodies, old women talked of their fancy work, and young women of their babies.

You will say that she made a slave of herself, that she had no chance to show what was in her. As a matter of fact, she was gathering material. When the time came for her to talk, she knew humanity. The stories told to her by the college boys and girls at some later day amazed the statesmen. The funny sayings of the eager little folk came in for after-dinner recital.

The good conversationalist picks up information everywhere. A dried up old maid tells you of cross-country riding, of foxes and hunters, of English customs, of pink coats and of meets. She speaks in a monotone, and you have to force yourself to listen, but some day you may be invited to dine at a country club, where the knowledge gleaned from that uninteresting source may help you to shine, as you chat with the gentleman next to you, whose soul is absorbed in sport.

We become vivid only as we give ourselves ardently to the things which please those about us. Who are dull and commonplace? Those whose souls are lounded by their own little experiences.—Kansas City Star.

"Did you see git anything?" whispered the burglar on guard as his pal emerged from the window. "Naw, de bloke wot lives here is a lawyer," replied the other in disgust. "Dat's hard luck," said the first; "did you see lose anything?"—Ohio State Journal.

Have you ever realized how much the beauty and comfort of home depends on the walls and ceilings?

THAT'S one of the big, interesting subjects discussed in our booklet "Beaver Board and its Uses."

You've no doubt read and heard of Beaver Board paneled walls and ceilings.

But you owe it to yourself to get all the facts, for here is a pure-wood-fibre material that solves practically every wall and ceiling problem, and follows the best modern ideas on interior decoration.

It takes the place of lath and plaster in every type of new or remodeled building, it doesn't crack or deteriorate, is easily put up, retards passage of heat, cold or sound.

It does away with unsanitary wall-paper, for you paint it in pleasing colors; it's clean, healthful and beautiful.

This is only a hint of its wonder-working possibilities. Send for the booklet and read it. You'll find it brimming with interest from cover to cover, and full of helpful illustrations and suggestions. No one intending to build or remodel any type of building can fail to be interested. Write to-day.

Beaver Board is sold by Builders' Supply, Lumber, Hardware and Paint Dealers, and Decorators, in sizes to meet all average requirements.

BEAVER BOARD
PURE-WOOD-FIBRE
Walls and Ceilings

This mark is stamped on the back of every panel.



It protects you. Look for it.

FOR SALE BY
The Lilley & Thurston Co.,
RIALTO BLDG., SAN FRANCISCO.

Selected Second-hand

PIPE

Every foot guaranteed. Save one-quarter on your pipe by ordering from us. Write for prices.

Alexander Pipe Co., Inc.
1083 Howard St., San Francisco

California Stump Puller



— IS —

Powerful
Durable
Reliable

Gets All
the Roots

ONE HORSE WILL PULL THE BIGGEST STUMPS.

Given satisfactory service in California for 20 years.

Write for free book.

CALIFORNIA STUMP PULLER CO., 704 Bryant St., San Francisco.



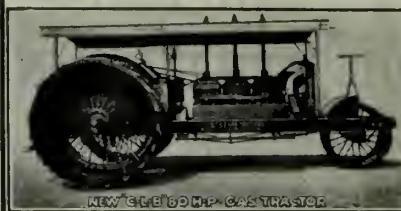
PIONEER CENTRIFUGAL PUMPS

Improved machinery and methods enable us to sell you this pump for less than you can buy any other make.

Our retail prices are less than our competitors' wholesale prices.

We guarantee our pumps the equal in quality and capacity of any. Live agents wanted. Write for circular and prices.

PEERLESS IRON WORKS, Sacramento, Cal.
Mention Rural Press.



THE NEW C. L. B. GAS TRACTORS

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WIRE AND IRON WORKS

310 12th St., OAKLAND

The Poet of the House.

The birthday anniversary on the 25th of January of Robert Burns recalls one of Col. Ingersoll's bits of eloquence on such an occasion—one of the most simple and beautiful tributes that was ever offered to the memory of the poet:

"Tonight, everywhere in the broad universe where two or three Scotchmen are gathered together, the memory of Burns will be celebrated. Why is Burns so greatly loved by the common people? We love Burns because he made common life noble; because he put native sense above the culture of the schools; because he raised the lassie of the field to the highest pinnacle; because he was of the people; he was a plowman. We love him because he was a man of genius. And a man of genius is something like a spring. There is no suggestion of labor about a spring, the clear water comes bubbling to the surface without anything that looks like effort. Burns' poems are like the water that comes from a spring. There is no midnight oil about them; there is no suggestion of rewriting about them. And he had the good sense to write about people whom he knew. He did not try to write about fine ladies, and make angels of them. He took the servant girls and dairy maids and made poems of them. Highland Mary was a milkmaid. The simple, necessary things of everyday life are always poetical. Keep close to the cottage. Keep away from the palace. Fine ladies robed in jewels are not poetic. They are artificial.

"The most perfect poem ever written is 'To Mary in Heaven'. If Burns had written nothing else, every man who had ever loved woman would enshrine the name of Burns within his heart. Above all Scotland's queens towers this peasant girl, made grand and noble by the love of Robert Burns. He was also the poet of home. 'The Cotter's Saturday Night' is a great picture and will live as long as there is language. Burns taught that the love of wife and child is the highest. To toil for these the highest honor. Since he wrote 'A man's a man for a' that' there has been more manhood in the world."

Getting Even.

"Hoo is it, Jecms, that ye mak' sich an enairmous profit aff yer potatoes? Yer price is lower than any ither in the toon and ye mak' ex'ra reductions for year friends."

"Weel, ye see, I knocked aff two shillin's a ton because a customer is a freend o' mine, an' then I jist tak' two hundredweight aff the ton because I'm a freend o' his."—Punch.

Discovered.

He—Yes, it's very true, a man doesn't learn what happiness is until he's married.

She—I'm glad you've discovered that at last.

He—Yes, and when he's married it's too late.—Le Rire.

Mother—Mercy me! The dentist has pulled the wrong tooth.

Little Dick (gleefully)—I fooled him bully.

Mother—Fooled him?

Little Dick—Yes'm. I told him that was the one, I knew if he touched the achin' one it 'ud hurt awful.

Theres many a big farmer on a small farm, but before many years have passed he will have a farm more nearly his size. Put a small farmer on a large farm and pretty soon it slips away.

The Vice-President and an Ignorant Fellow.

It is related that one day when Schuyler Colfax, vice-president when Lincoln was president, was on a railway car in the West traveling with his wife and mother, he was occupying a seat in the rear of the coach while the ladies were in the front end.

An ignorant fellow who knew Colfax had crowded himself into the seat with the vice-president, and was noisily talking about everything and everybody. Finally he said: "Colfax! who is that fat old sow sitting up there in front opposite your wife? I happend to hear her say that she had lived in Indiana twenty-five years. Do you know her?"

"Yes," answered Mr. Colfax, "but I hesitate to tell you."

"And why should you?" said the fellow. "It is a matter of no consequence to me, but she is so fat that she reminds me of an old sow I own."

"Well, then," replied Mr. Colfax. "I will have to inform you that her name is Mary Colfax, and I have the honor of being one of her little pigs. She is my dearly loved mother."

At this the ignorant boor stammered out some sort of an apology, but Mr. Colfax resumed the reading of a book, and the fellow sneaked away. Here is a lesson for all of my boy and girl readers. Be kind and polite to everybody.—R. A. Dague.

A young aide-de-camp at a great party approached Archbishop Whately and said: "Does your Grace know the difference between an ass and an archbishop?" "No," was the grave answer. Then the youth went on, "An ass has a cross on his back, but an archbishop has a cross on his breast." "Very good," said the archbishop. "Now, will you tell me what is the difference between a young aide-de-camp, like yourself, and an ass?" "I don't know," said the youth. "Neither do I," said the archbishop, and walked away.—Christian World.

Little Freddie was playing in the garden, when he happened to notice that the blinds were drawn down in the next house.

"Mother," said Freddie, "why are the blinds down in Mrs. Brown's house?"

"Only to keep out the sun," said she.

A few days later Freddie's mother informed him that Mrs. Brown had got a son. After thinking deeply for a few minutes, Freddie said:

"Seems to me, mother, it wasn't much good keeping the blinds down."

SECOND HAND PIPE

Very best quality of selected second-hand water pipe and standard casing pipe. All newly cut threads and new couplings attached; asphaltum dipped. Fully guaranteed. At extremely low prices. BUY NOW while the opportunity prevails.

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Wells Fargo Nevada National Bank of San Francisco,

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Total \$11,000,000.00

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I deal direct with the consumer. If I had agents to sell my product it would mean that I must add to my price as much as the agents' commission would be. My lumber is brought direct from the forest. Latest improved machinery. Up-to-date methods. Redwood Tanks, Picking Boxes, Peach Boxes, Drying Trays, Egg Gases. A tank 5 ft. diameter, 2 1/2 ft. deep, \$7.50. A tank 6 ft. diameter, 2 1/2 ft. deep, \$10.50. Large stock of tanks of various sizes in stock. Anything made to order on short notice. Spraying tanks. Grape stakes.

R. F. WILSON, 447 W. Main St., Stockton, Cal.

THE MARKETS.

San Francisco, Jan. 21, 1913.
(Unless otherwise noted, quotations represent prices paid to the growers.)

Cereals.

WHEAT.

Local business is still of a rather limited nature, and supplies are ample for current needs, being frequently replenished by shipments from the North. Values here show no further change, but are firmly held in sympathy with recent advances in the primary markets.

California Club	.....\$1.52½ @ 1.55
Sonora	.....Nominal
White Australian	.....Nominal
Northern Club	.....1.52½ @ 1.55
Northern Bluestem	.....1.62½ @ 1.65
Northern Red	.....1.62½ @ 1.65

BARLEY.

Spot trading is only moderate, but values are well maintained by the firm attitude of outside holders, who are shipping in very little at present. There is still a good export movement, both here and in the North.

Brewing and Shipping	...\$1.45 @ 1.50
Choice Feed, per ctl.	.....1.32½ @ 1.40
Common Feed	.....Nominal

OATS.

The principal requirements in the way of seed oats have by this time been supplied, and there is little inquiry of an important nature. Prices are accordingly less firm than last week, and first-class red oats are slightly lower, though other lines are unchanged.

Red Feed	.....\$1.85 @ 1.90
Seed	.....2.00 @ 2.10
Gray	.....Nominal
White	.....1.60 @ 1.65
Black Seed	.....2.20 @ 2.35

CORN.

Eastern corn is still fairly firm, but local values remain as before, the demand being only moderate.

Cal. Yellow	.....Nominal
Eastern Yellow	.....\$1.50 @ 1.55
Eastern White	.....Nominal
Kaffir	.....1.50 @ 1.55
Egyptian	.....1.70

RYE.

Both demand and supply are light, the movement being hardly sufficient to establish definite values.

Rye, per ctl.\$1.45 @ 1.50
---------------	--------------------

BEANS.

The demand for shipment continues to improve, and there are indications of a lively spring movement, with satisfactory prices. Prices show considerable revision toward higher levels, the principal reason being that local buyers have been active for the last few weeks, and there is now hardly anything left in the up-river districts. The quotations accordingly represent transactions in the local market. Conditions now appear favorable for this year's crop, both in this part of the State and in the lima districts. It is, of course, too early to venture any predictions as to the conditions that will prevail by harvest time, but present conditions are encouraging.

Bayos, per ctl.	.....\$3.25 @ 3.45
Blackeyes	.....3.00 @ 3.25
Cranberry Beans	.....4.70 @ 4.80
Horse Beans	.....2.25 @ 2.35
Small Whites	.....4.50 @ 4.65
Large Whites	.....4.00 @ 4.35
Limas	.....5.60
Pea	.....Nominal
Pink	.....3.70 @ 3.90
Red Kidneys	.....4.00 @ 4.25
Mexican Red	.....4.00 @ 4.20

SEEDS.

There is a very fair general movement, but otherwise the situation shows little change, values standing as for some time past on all lines.

Alfalfa	.....16 @ 17 c
Broomcorn seed, per ton	...\$29.00 @ 30.00
Brown Mustard, per lb.	.....3½ c
Canary	.....4 @ 4½ c
Hemp	.....3½ @ 4 c
Millet	.....2½ @ 3 c
Timothy	.....Nominal
Yellow Mustard	.....Nominal

FLOUR.

Owing to the recent advances and continued firmness of wheat, millmen both here and in the North have made a general advance on both domestic and export grades.

Cal. Family Extras	.....\$5.60 @ 6.00
Bakers' Extras	.....4.60 @ 5.20
Superfine	.....3.90 @ 4.10
Oregon and Washington	.....4.90

Hay and Feedstuffs.

HAY.

The movement from country districts has been interfered with by weather conditions, resulting in rather light arrivals in the local market. Local demand has been light, but values are held on about the former basis. The rains of the past week have been abundant and well distributed, and have greatly relieved the situation in all parts of the State, moisture in the ground being sufficient to last for several weeks. Buyers are accordingly inclined to hold off, believing that prices will be easier. Only a little hay has been shipped from here to southern California, and no large movement is expected, the level of prices here being too high.

No. 1 Wheat, or Wheat and Oat	.....\$19.00 @ 22.00
do No. 2	.....15.50 @ 18.50
Lower grades	.....12.00 @ 15.00
Fame Oats	.....15.00 @ 20.00
Wild Oats	.....12.00 @ 17.50
Alfalfa	.....10.50 @ 14.00
Stock Hay	.....9.00 @ 10.50
Straw, per bale	.....35 @ 70c

FEEDSTUFFS.

Rolled barley has taken another slight drop, following the recent decline in the whole grain. Other lines are unchanged, though a little easiness is noted in some descriptions.

Alfalfa Meal, per ton	.....\$18.50 @ 19.00
Bran, per ton	.....25.00 @ 26.00
Oil-cake Meal	.....40.00 @ 41.00
Cocoanut Cake or Meal	.....Nominal
Cracked Corn	.....35.00 @ 36.00
Middlings	.....35.00 @ 37.00
Rolled Barley	.....28.00 @ 29.00
Rolled Oats	.....37.00 @ 38.00
Shorts	.....29.00 @ 30.00

Garden Truck.

VEGETABLES.

The frost has caused a marked change in the appearance of the market, a number of lines, mostly from the South, having practically disappeared. Eggplant is now entirely out of the market, and there is not enough rhubarb to quote, though a few small lots have been sold at high prices. A little asparagus has come in, but it will be several weeks at least before this vegetable takes its regular place in the market. Plenty of Southern lettuce is coming in, and there is a fair amount of peppers and tomatoes from the same quarter, but these find little sale, the tomatoes showing some injury. Green peas are very scarce and high in value. Cauliflower and sprouts are higher, and first-class celery is in light supply, large crates selling up to \$3.50. Mushrooms are plentiful and cheap.

Onions—	
Yellow, ctl.	.....50 @ 55c
Garlic, per lb.	.....2 @ 3c
Tomatoes, per crate	.....50 @ 75c
Cucumbers, per doz.	.....1.00 @ 1.25
Cabbage, per ctl.	.....50c
Carrots, per sack	.....75c
Cauliflower, per doz.	.....90c @ 1.00
Green Peas, lb.	.....17½ c
Celery, crate	.....2.50 @ 3.50
Rhubarb, lb.	.....Nominal
Mushrooms, lb.	.....10 @ 25c
Artichokes, doz.	.....75c @ 1.25
Sprouts, lb.	.....6 @ 7c
Green Onions, box	.....50c
Green Peppers, lb.	.....6 @ 8c
Lettuce, crate	.....1.00 @ 1.35

POTATOES.

River and Salinas goods are hardly as firm in value as last week, though digging has been interrupted and the general situation is rather better than for some time past. Stocks both here and at Stockton are moderate, and a fair demand is noted, with some inquiry from the Southwest. Some potatoes are now being brought in from Oregon, the movement from that quarter having been interrupted for some time.

River Whites, ctl.	.....50 @ 60c
Salinas, ctl.	.....\$ 1.00 @ 1.35
Oregon, ctl.	.....90 @ 1.00
Sweet Potatoes	.....1.85 @ 2.00

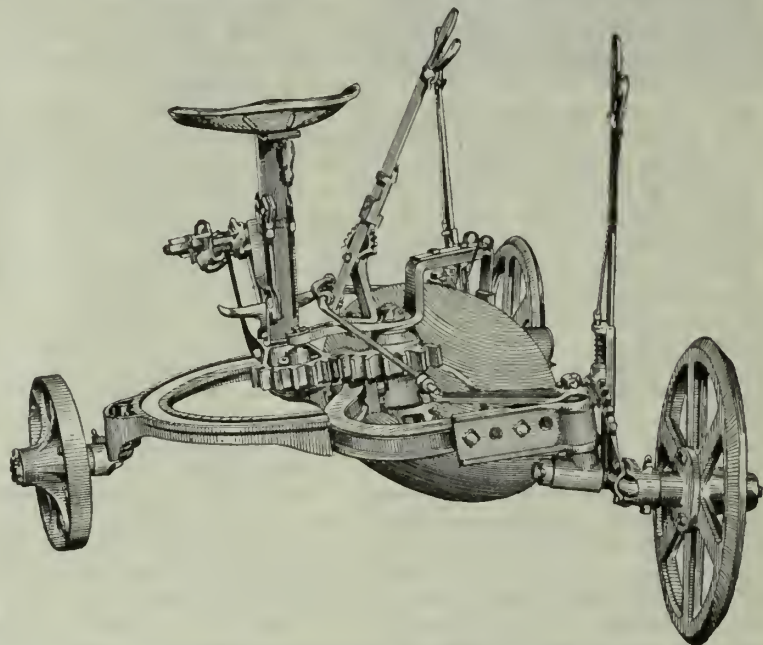
Dairy Produce.

POULTRY.

The delay of trains by snow in the mountains has prevented the usual arrivals of Eastern chickens from reaching the market, and while a few have come in, the supply is very light. Shipments from California points are much larger than for some time past, but not enough to make up for the scarcity of Eastern stock, and prices for practically all lines show a sharp advance. Good dressed turkeys find ready sale at former prices.

It Pays To Use Benicia Implements

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BENICIA REVERSIBLE DISC PLOW.

Simplifies hillside plowing. All furrows turned same way. Equally adapted to level land. Equipped with patent adjustable tongue, operated by driver's foot without leaving seat. Easy on the horses. Guaranteed to do good work in dry, hard or fallow ground, either clean, trashy or rooty. All levers conveniently placed and easily operated from the seat. As a deep tiller is a great success. Highest grade material used in construction. Very popular and without doubt the best plow on the market. Absolutely guaranteed and up to date. Send for plow circulars.

BENICIA IRON WORKS, Manufacturers.

Factory: Benicia, Cal.

451 Brannan St., San Francisco, Cal.

Large Broilers, per lb.	.....25 @ 26 c
Small Broilers, per lb.	.....27 @ 29 c
Fryers, per lb.	.....20 @ 22 c
Hens, extra, per lb.	.....18 @ 19 c
Hens, large, per lb.	.....18 @ 19 c
Small Hens, per lb.	.....18 @ 20 c
Old Roosters, per lb.	.....10 @ 12 c
Young Roosters, per lb.	.....18 @ 22 c
Squabs, per doz.	.....\$ 3.00 @ 3.50
Geese, per pair	.....1.50 @ 2.00
Ducks, doz.	.....4.00 @ 6.00
Turkeys, dressed	.....24 @ 25 c

BUTTER.

Butter has again been marked up a little, and is firm at the advance, the arrivals being barely sufficient to take care of the local demand.

	Thu.	Fri.	Sat.	Mon.	Tu.	Wed.
Extras	...34½	35	36	36	36	36
Firsts	...33	33½	33½	34½	34½	35

EGGS.

Prices have rapidly recovered from the drop of last week, the arrivals being very light for a few days, and while supplies have increased somewhat in the past few days, prices are still firm and advancing. This situation is partly due to the receipt of orders from the North.

	Thu.	Fri.	Sat.	Mon.	Tu.	Wed.
Extras	...24	25½	25½	26	27½	28½
Firsts	...22½	24½	24½	25	26½	27
Selected						
Pullets	...22	24	24½	25½	26	27

CHEESE.

The cheese market is getting into better shape, fancy flats and Y. A.'s being firm at 1c advance, while Monterey cheese is steady as last quoted.

Fancy California Flats, per lb.	.....17 c
Firsts	.....14 c
New Young Americas, fancy	.....18 c
Monterey or Jack Cheese	...17½ @ 18½ c

Deciduous Fruits.

There is nothing new to report in this line, offerings being limited to apples and Winter Nellis pears, while the general run of local business has been considerably interrupted by weather conditions. Stocks of apples are still excessive, with little outside demand, and values show no improvement.

Apples: Fancy Red, box	.....75c @ 1.25
Red Pearmain	.....40 @ 60c
Bellefleur	.....65c @ 1.00
Newtown Pippins	.....50c @ 1.00
Greenings	.....60 @ 75c
Common	.....35 @ 60c
Pears: Winter Nellis	.....1.75 @ 2.25

Dried Fruits.

While there is no great activity as yet, the market appears in fairly healthy condition for this time of year. The only line showing pronounced weakness is evaporated apples, which are plentiful both here and in the East, with practically no inquiry. A slightly easier feeling in raisins is reported in some quarters, and it appears that efforts will be made to clean up the market before the next crop comes in, but growers show no disposition to accept lower prices. Peaches are firm, with some inquiry from buyers, and apricots are closely cleaned up. The greatest strength is in prunes, especially the larger sizes, which are becoming very scarce. There has been a good-sized movement to Europe this month, and some large inquiries are being received from the East. Small sizes have not yet received much attention, but are expected to find a better demand during the spring. The New York Journal of Commerce says:

"While advices from the Coast reflect a steady feeling in all kinds of raisins except two-crown loose and choice seeded, the spot market has a relatively easy tone. Prices ex store New York on seedless stock are below a parity with the Coast market, but this fact does not seem to help the movement here. Loose Muscatel raisins in three and four crowns are very sparingly offered and firmly held, but two crowns are freely offered owing to the excess of this size in the 1912 crop, and the market is dull and easy, with prices nominal. California prunes are generally firm on the sizes most desired, but on medium counts the market is easy, and smaller fruit is barely steady. As has been repeatedly said, 20s and 30s are almost unobtainable on the spot, and dealers here who have any of these sizes in stock are holding them at extreme prices. In peaches and apricots the spot movement continues slow, and little improvement in this respect is looked for until

the spring consuming season arrives. The Coast market is strong on apricots and firm on peaches."

(New crop.)

Evap. Apples, per lb.....	4½ @ 5 c
Apricots	9 @ 10 c
Figs: White	4½ c
Black	3 c
Callmyrna	4 @ 5 c
Prunes: 4-size basis.....	3 @ 3½ c
(Premium: 1c for 40s-50s; 2c for 30s-40s.)	
Peaches	4¼ @ 4½ c
Pears	4 @ 7 c
Raisins—	
Loose Muscatels in sweatbox	2¼ @ 2½ c
Thompson's Seedless.....	4½ c
Seedless Sultanias	3 @ 3½ c

Citrus Fruits.

The citrus markets show advances in prices since the freeze, and good fruit is getting and doubtless will command better prices as a consequence. The emergency committee of growers is endeavoring to have only good fruit shipped, so that frosted fruit may not depress the markets. The brown spot is said to be developing in some districts, making the oranges bitter. The rains following the frost were the best possible thing that could have happened to the groves and fruit. Damaged trees have now a chance to recuperate, and the good fruit will mature nicely. The consensus of opinion in the South at this time is that about half the crop will be saved.

At the Eastern auctions prices are somewhat higher and the demand good. At New York on Monday, Jan. 20th, navels averaged from \$1.85 to \$4.65 per box, the latter price being paid for a car of Kaweah Chief, shipped from Lemon Cove. Lemons at the various auctions sold for as high as \$6.65 per box. At Philadelphia, the same day, Florida oranges brought \$1 and up to \$2.90 per box.

Shipments from southern California are going East at the rate of about 50 cars of oranges and 10 of lemons per day.

The only change in San Francisco prices is a further advance in the lower grades of lemons and the offering of a few Mexican limes at a sharp advance. Grapefruit also is very firm, and with inadequate supplies it is reported that some Florida fruit will be brought in. The orange market is in poor condition, supplies being rather large and including a considerable proportion of frosted fruit, while the demand has been very light. A better demand is expected, however, and holders are firm in their views, feeling that values at shipping points are not likely to be any lower.

Oranges, per box—

Navels, good to fancy....	\$ 1.25 @ 3.25
Frosted	1.00 @ 1.50
Tangerines	1.25 @ 2.00
Grapefruit, seedless.....	2.50 @ 4.50
Lemons: Fancy	6.50 @ 7.00
Choice	5.00 @ 5.50
Standard	4.00 @ 5.00
Limes	8.00 @ 10.00

Nuts, Honey, Hops, Etc.

NUTS.

With growers' stocks cleaned up, quotations represent values in the local trade. Jobbers' stocks are more or less broken, and everything is firmly held, though the general demand is not very large at this season.

Almonds—

Nonpareils	17½ c
I X L	16½ c
Ne Plus Ultra.....	15½ c
Drakes	12½ c
Languedoc	11½ c
Hardshells	8 c

Walnuts, 1912 crop—

Softshell No. 1.....	16 @ 16½ c
Hardshell No. 1.....	15 @ 15½ c
No. 2	10½ c
Budded	17 c

HONEY.

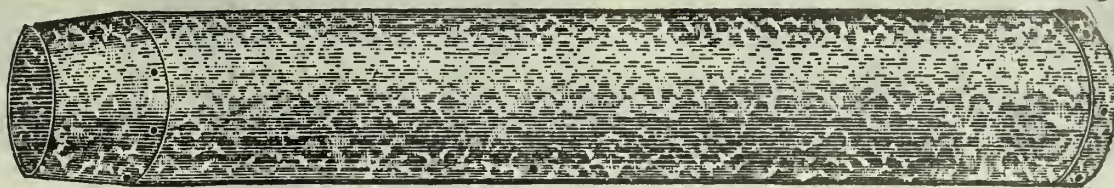
Reports from the South indicate low stocks and a firm market, but the only line of which there is any marked shortage in the local market is the best Water White extracted. Values on all lines are steady, but trading is dull.

Comb, white	12½ @ 14½ c
Amber	10 @ 12 c
Dark	9 @ 10 c
Extracted, white	8 @ 9 c
Amber	6 @ 6½ c
Off Grades	5 @ 6 c

BEESWAX.

There is no demand of any consequence and local dealers have considerable stock on hand. Values are nominally as before.

SAVE YOUR TIME WATER AND GRADING BY IRRIGATING WITH AMERICAN SURFACE IRRIGATION PIPE



The PIPE RECOMMENDED BY ALL USERS. It is the ONLY SCIENTIFICALLY CONSTRUCTED SURFACE IRRIGATION PIPE on the market. Famous for having a lock seam without rivets. THERE'S NO ROUND SEAMS TO LEAK, retard the flow of water or weaken the pipe. This pipe is easily handled and cheaper than flumes. It will last a lifetime. For irrigating alfalfa it is the only pipe to use. We make RIVETED PIPE, TANKS, ETC. Write for ILLUSTRATED CATALOGUE, also SPECIAL IRRIGATION FOLDER which may mean much to you.

American Steel Pipe & Tank Co., General Offices 312-43 Pacific Electric Bldg., Los Angeles, Cal.

Light	29 @ 30 c
Dark	25 @ 26 c

HOPS.

Offerings in the country are now pretty well cleaned up, and all stock in dealers' hands is firmly held, prices for the lower grades having advanced.

1912 crop	12½ @ 20 c
-----------------	------------

WOOL.

Prices are nominally as before, the market for California wool being very dull.

Fall Clip:

Northern and free Mendo-	
cino	12 @ 14 c
Lambs	9 @ 13 c
San Joaquin and Southern. 6	@ 10 c
Mohair	15 @ 28 c

HORSES.

The local demand, as shown in recent sales, is running almost entirely to good broken stock, anything over 1300 lbs. in this class finding ready sale at a substantial premium over the ruling quotations, while young unbroken horses of similar types will hardly bring the quoted prices. Some of the broken stock weighing around 1400 lbs. has brought as high as \$250. Values show some improvement all round, and a strong market is expected from now on. Offerings of good heavy drafters are larger than for some time past.

Heavy drafters, 1700 lbs. and over	\$300 @ 350
Light Drafters, 1500 to 1650....	250 @ 285
Chunks, 1350 to 1500 lbs.....	200 @ 250
Wagon Horses, 1250 to 1350....	180 @ 225
Delivery Horses, 1050 to 1250....	125 @ 150
Desirable Farm Mares.....	100 @ 125

MULES.

1200 lbs.	\$200 @ 250
900 lbs.	75 @ 125
1100 lbs.	175 @ 200
1000 lbs.	125 @ 175

Live Stock.

Hogs are quoted a little higher, and in the dressed-meat department an advance is noted in steers, as well as mutton and lamb. Beef is extremely firm, and still higher prices are expected.

Steers: No. 1	7 @ 7¼ c
No. 2	6¼ @ 6¾ c
Cows and Heifers: No. 1....	6 @ 6¼ c
No. 2	5¼ @ 5¾ c
Bulls and Stags.....	2 @ 4 c
Calves: Light	7¼ c
Medium	6¾ c
Heavy	5 @ 6 c
Hogs: Grain-fed, heavy.....	6¾ @ 7 c
150 to 250 lbs.....	7 @ 7¼ c
100 to 150 lbs.....	6¾ @ 7 c
Prime Wethers	5 @ 5¼ c
Ewes	4 @ 4¼ c
Lambs	6 @ 6¼ c

DRESSED MEATS.

Steers	11¼ @ 11½ c
Cows	10½ @ 11 c
Heifers	11 c
Veal, large	10 @ 11 c
Small	12 @ 13 c
Mutton: Wethers	10½ @ 11 c
Ewes	10 @ 10½ c
Spring Lambs	13 @ 13½ c
Hogs, dressed	11 @ 12 c

HIDES.

Prices are fairly well maintained, but the market is very dull.

Heavy Steers, over 56 lbs.	14½ c
Medium	14 c
Light Steers, under 48 lbs. 13	@ 14 c
Heavy Cows, over 50 lbs.. 13	@ 14 c
Light Cows, 30 to 50 lbs.. 12½ c	
Kip	15 @ 16 c
Veal	18 @ 19 c
Calf	18 @ 19 c

Dry—

Dry Hides	23½ @ 24½ c
-----------------	-------------

Built Right

A tractor, to be most useful, must be planned right and built right—and it must work right.

You get results from a



GASPULL

15-30 h.p.

because it's designed right, light and handy but powerful. It's built like a battleship and it's easy to operate.

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We have a book—GasPull Data-Book No. 352—it's full of information about the machine and has a lot of valuable farm information. Write for it. Tell us how big your farm is and if you've ever used a tractor.

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Medium Wool, 6 to 9 mos..	60 @ 90c
Short Wool, 3 to 6 mos...	40 @ 60c
Lambs	35 @ 70c

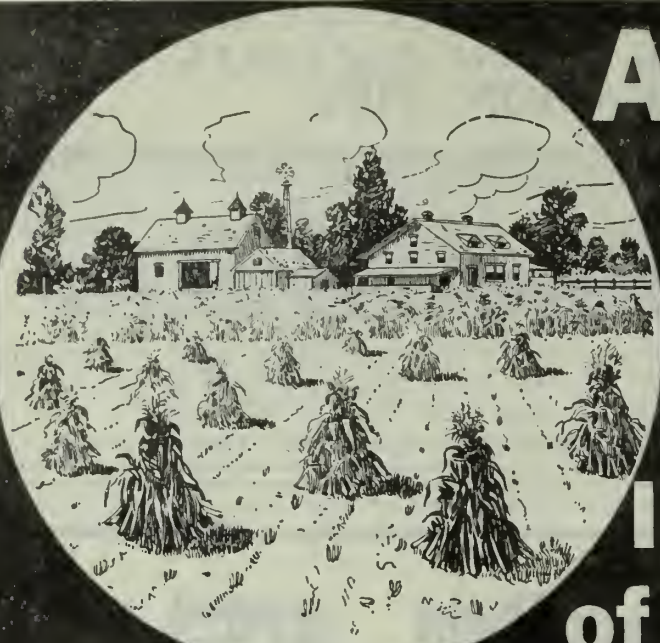
of packages to the names sent him. If you do not receive the plants by February 5th, kindly let us know and we will have them traced by Mr. Etter. Do not send us requests for more plants from now on, as we have no more with which to fill orders.

Not only is the **PACIFIC RURAL PRESS** valuable to the farmers, but for some time past it has been used extensively in the schools throughout the State that have agricultural departments. Mr. W. O. Smith, principal of the Petaluma High School, in remitting his renewal, says:

"I wish to assure you of the very high esteem in which I hold your paper. We find it of very great use in connection with our High School work in agriculture and horticulture. Personally I would sooner do without any of my other magazines than the **PACIFIC RURAL PRESS**. It is refreshing, interesting, stimulating, and generally helpful even to one not practicing farming."

PUBLISHER'S DEPARTMENT.

The last of the strawberry plant distribution has been finished. This week the final list of names was sent to Mr. Etter, and he will send the plants by mail. We now have finished our part of the work, and those who requested them and who were paid-in-advance subscribers, will receive them. Do not be impatient if your plants are delayed; remember that Mr. Etter has a big job on his hands to get out the great number



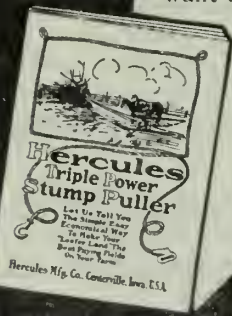
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Let me *prove* it to you. Just mail me your name and address so I can send you my fine book, free. Use the coupon—or just a postal. On page 45 of my book it's all figured out for you in black and white. See how much your loafer stump land—*robber* land, is costing you. See how much it decreases the value of your land. See how it keeps you from farming *all the acres you pay taxes for*. Face the facts—and know how *vital* it is to you to pull out every stump if you want to cash in on all your possibilities—if you want to get all the money you *should* get from your land. My book *proves* that by pulling the stumps, you can



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The estimate is low. You can do even better. Remember, you plant on *virgin* soil when you plant where stumps stood.

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Pulled in a Day**

That's what *you* can do with a Hercules. And you won't have to pass by any of them. Big or small, they *can't* resist the terrific pull of the triple power. And the Hercules won't break. It gives a greater pull than a locomotive—yet the strain is so scientifically distributed over the All-Steel Hercules that we *can* and *do* guarantee it against breakage for 3 years.

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If any casting of your Hercules breaks within 3 years from date of purchase, send in the broken

part and we will replace it free, whether the break was your fault or the fault of too great a strain or a flaw or *anything*. Even with the great power and strength of the Hercules, it is 60% lighter than other pullers.

What Others Have Done

Read the many letters in my book. See what your brother farmers are doing. One man increases the value of his land from \$25 to \$125 per acre. Another makes \$1000 by pulling hedge fences. Another pulls stumps for 40¢ each. And so on. Don't you want the facts? Don't you want to know the easiest, quickest, cheapest, safest and surest way to clear out every stump in *your* fields?



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Against Break-
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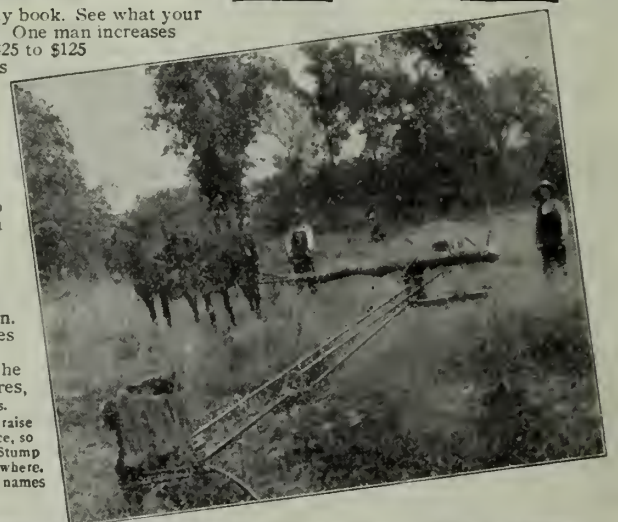
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NOTICE—Grand Prize Yellow Strand Wire Rope used on HERCULES PULLERS.

It is this Yellow strand wire rope that won first prize at St. Louis Exposition proving twice as good as next best cable. It is this Yellow strand wire rope that is being used by the U. S. Government at Panama on the real important work of building the canal. And experts say this Yellow strand rope is one of the big helps

that will enable Uncle Sam to complete the canal a whole year before expected. And it is the Yellow strand wire rope that is used exclusively on the Hercules Stump

Puller—out a green strand, blue strand, white strand or red strand—but a **YELLOW** strand—don't forget that—and don't let any unscrupulous person or company confuse you.

THE PACIFIC RURAL PRESS

Vol. LXXXV. No. 5.

SAN FRANCISCO, SATURDAY, FEBRUARY 1, 1913.

Forty-Third Year.

Better Peaches, Better Prices.

[BY OUR ASSOCIATE EDITOR]

Last season the price of dried peaches was not very good, and drying peaches for planting do not seem to be in great demand by the grower as a result. How much this is due to the bad marketing system that afflicts the grower and how much to a rather high percentage of poorer grades cannot be said. It is certain that if better fruit were raised, it would be easier to get better returns for it, and if heavier production were achieved by a grower he could afford a somewhat lower price than if he were getting rather small crops. In other words, heavier yields of the fine fruit and good horticultural practice would help the grower and help the market.

This fact is illustrated in the experience of F. H. Wilson, a view of whose residence accompanies this. Like many of our successful nurserymen, Mr. Wilson practices fruit growing on a large scale and makes a big success of it as well as running a big nursery business. The experience obtained in the nursery business has been excellent for success in fruit growing, as the fruit growing has been excellent in showing what was needed in the nursery.

Good Prices.—All of the green and dried peach products are sold on a ten-year contract, and no difficulty has yet arisen in delivery. In spite of the thoughts of overproduction that had been afflicting some growers and buyers, the quality of the fruit from the Wilson orchard was such that a year ago a contract was made with the same concern that had been getting the peaches for the fruit from a new plant of 100 acres for a price exceeding that of the unexpired ten-year contract covering the older orchards.

Mr. Wilson is now farming to fruit over 500 acres, consisting of peaches, both drying and canning, apricots, plums, grapes, both raisin and shipping varieties, and oranges, the latter about 60 acres, which are not included in the 500. All of these orchards of whatever variety, have proven profitable, there being no year when the profits did not equal a net income of from 12 to 20%, based on book valuations of the ground utilized, which is placed at from \$300 to \$400.

This percent is the minimum, some seasons the figures greatly exceed those named. It will, of course, be understood that these profits in years of general low prices are partly due to selling on a contract price well above what the average man was getting, which which would be partly offset by getting only average prices in seasons when a small crop, or for other reasons, peaches were bringing a high figure.

The fresh fruit shipments by Mr. Wilson, it might be stated, are

about 40 cars per year, though this will increase to about 75 cars when crops are good and all trees are in full bearing.

This success can be attributed to having good yields of the best quality of fruit, and this to a thorough knowledge of the rules governing successful horticulture, coupled with careful attention to details to see that the knowledge is well applied.

A Good Start.—The smaller picture of a peach orchard in its first year is another illustration of what good care accomplishes. By following the methods used on this orchard and with equally good care after the trees have reached bearing age, there is no doubt but what such an orchard, for quality and quantity of fruit, would be practically unbeatable. We have to thank Mr. Christopher C. Omsley for the following account of the way that success was attained:

“This orchard is located one-half mile west of Madera. It is under the careful management of D. B. Harris, who owns the land, but does not stay on the property all the time. He has on the place Walter A. Edmondson, who carries his plans into effect.

“The ranch consists of 160 acres. The land is a sandy loam and has no hardpan. For quite a number of years it had been in alfalfa. Last year 80 acres were set in peaches and the remainder will be set out this year. In September and October, after it had been planned to put the ranch into orchard, the land was plowed from 15 to 18 inches deep with a subsoiling disc plow and was then checked up with an engineer's level.

“The place was then marked where each tree was to be set, and

holes were bored from 2½ to 3 feet deep and a cartridge of Du Pont powder placed therein. The firing was done by an electric process. The ground was shaken up considerably. One could stand off quite a way and feel the vibration.

Irrigation.—“The land has a slight slope, a 40 horse-power gas engine being located on the upper side, running water into a main ditch and then other ditches running from this. Still other sub-ditches brought this water into all the caverns or blasted holes. Thus it was that a lot of surface soil was washed into all the caverns.

“After the ground had dried quite a bit the trees were set in and cut off about 18 inches above the top of the ground. These trees were set in last February and March. A concrete tile irrigating system will be installed for further irrigation.

“The picture that I here inclose will show how thrifty the trees are. The gentleman in the picture is Mr. Edmondson, who is 5 feet 9 inches in height. Various pictures could be made over the orchard showing trees that look as well as that. We think that good results have been



Young Peach Orchard of D. B. Harris, Madera.



Home of F. H. Wilson, With Packing House on Left.

(Continued on Page 139.)

Pacific Rural Press

Issued Every Week at 420 Market Street, San Francisco.

TWO DOLLARS PER YEAR IN ADVANCE

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FRANK HONEYWELL - - - - - Manager
W. H. SCHRADER - - - - - Adv. Manager
D. J. WHITNEY - - - - - Associate Editor

CALIFORNIA WEATHER RECORD.

The following rainfall and temperature record is furnished the PACIFIC RURAL PRESS by the United States Department of Agriculture, Weather Bureau, at San Francisco, for the week ending at 5 p.m., January 28, 1913.

Stations.	Rainfall Data.			Temperature Data.	
	Past Week.	Seasonal to Date.	Normal to Date.	Maximum.	Minimum.
Eureka .....	.23	24.75	23.73	54	34
Red Bluff.....	.08	13.17	13.69	66	36
Sacramento.....	.06	5.32	10.42	60	36
San Francisco ..	.06	8.79	12.21	62	42
San Jose.....	.01	3.91	8.83	66	32
Fresno.....	.00	2.52	5.02	64	36
Independence...	.00	.92	4.95	60	16
San Luis Obispo	.00	4.51	10.01	76	38
Los Angeles .....	.00	2.90	7.65	76	42
San Diego .....	.00	2.88	4.95	68	42

The Week.

The warm sunshine day after day announces the return to normal California winter weather, and were it not for the forlorn aspect of lemon and orange trees in some parts of the State there would be no sign on the landscape that some new points had been established in California meteorology. We have passed the crisis with some repairs needed in the orchards and other more serious repairs required in the pocket book perhaps, but there is some satisfaction in knowing that the worst is not still to come, and everyone can address himself to repairs with such degree of strength and courage as he is capable of.

Would it have been better to have known of the trouble six months or a year before it came? That is chiefly a question of metaphysics and therefore beyond our reach, but the shadow of it comes over us from the announcement that the lost art of prophesying the weather six months or a year in advance, which was practiced with such inward satisfaction by the almanac makers of our grandfather's time, is to be restored, possibly. The announcement comes from New York that if the Carnegie Foundation will put up five million dollars, Prof. Henry Helm Clayton, the noted meteorologist, and the chief sponsor of the plan, will organize an international weather bureau by which it would be possible to make weather forecasts six months or a year in advance. "It is the dream of the weather man ultimately to make accurate weather forecasts for a year," said Prof. Clayton. "This could not be done in the United States, for instance, solely on data that could be gathered within the boundaries of this country. Information for gathering statistics would have to be set up in remote sections of the earth. The institution would have a quasi-government relation similar to the Red Cross society." It is surely a great thing to think about. It would certainly give us better knowledge of the causes and movement of storms and would probably be worth all it costs in ways which cannot be foreseen.

Citrus Injuries.

It is being demonstrated by continued observations, that the escape of citrus trees from injury by low temperatures in some districts of the State is as remarkable as the damages by the same agencies in other parts. No one expected either such escape or such suffering in this State, and it will still take several weeks to measure both accurately and months to explain the phenomena. It still appears that the effects of the freeze were conditioned more upon the tree than upon the thermometer. As a by-product of the low temperature, however, there are trade troubles which are clearer and very vexatious. Shipments of fruit have been condemned in Chicago and the shippers have lost money in cost of packing and transportation which they should not have encountered. The claim is rightly made that if the government is going to condemn fruit it should be done by inspectors in the California packing houses and not by inspectors in the East. That is the way meats are inspected, and the one whose property a rejected carcass is does not lose the cost of distribution. But the answer is that the government has no authority to inspect at the packing point, and there you are. Until some more rational arrangement is possible, growers must save outlay by not shipping frosted fruit, and just how to do that without cutting the fruit is not yet fully demonstrated. The California Experiment Station is at work upon that problem. It has been announced that federal inspection will be made of all shipments in intermediate shipping points, and all packages found to contain 15 per cent or more of frozen fruit will be declared adulterated within the meaning of the pure food and drugs act. The Board defines frozen citrus fruit as fruit which, upon transverse section through the center, shows a marked drying in 20 per cent or more of the exposed pulp. But growers must have some outward test for such interior defects or shippers must operate at great risk of condemnation. We are glad that little is being said about the "poisonous character of frosted fruit." That was a silly claim of some Florida people, but it is without foundation in fact. There is no knowledge of anyone ever being poisoned in that way, and such a condition would be scouted by anyone whose boyhood's memories are of frozen apples, for which it is not hard to acquire a taste. But, of course, frozen oranges are inferior, becoming progressively more so day by day, and no reasonable person expects people to buy them as sound fruit. Mark them "frosted," which conveys a truer idea of the fact than "frozen," and is a good dictionary word to be used when you get caught only on the tip of the nose, for instance. With such warning, people ought to be allowed to buy such fruit if they want it; otherwise, this winter, many people may be denied what is really good for them.

The Benignity of the Banana.

While we are becoming hedged about by many regulations for the public safety, it is comforting to be assured that there are a few things that nature does about right and need not fear the germ-chaser. A contemporary writer assures us that experiments with the fruit in different stages show that the inner portions of the bulb of sound bananas are practically sterile. The peel is singularly resistant to invasion by bacteria. Even when bananas were immersed in fluids containing disease germs they did not penetrate into the interior. This is an interesting example of a food delivered by nature in practically sterile packages. But nearly all the joy of the foregoing flits away when the kindly writer adds: "The probability

of infection through the peel is therefore slight, though germs on the peel might be transferred to the consumer's fingers and thence to the mouth." But then one can peel down the banana and bite out the pulp without fingering it while still retaining his hold upon the exterior surface of the peel and then be wholly safe, providing he is furnished with a finger bowl of some good anti-septic solution. Never fear, our advanced sanitarians will soon find a way by which a man can transfer the sterile interior of a banana to his own germ-charged interior without losing his fingers in the operation. It is something encouraging to think of that.

Rational Eating.

Thank the Lord for Dr. Woods Hutchinson; he really returns joy to living—the joy which every man felt welling up within him before he was scared almost to death by the dietarians with the claim that everything he liked was bad for him. This is the way he preaches it:

Pie—almost a necessity to life. Hot mince, cold mince, lemon (with or without the meringue), pumpkin, apple, raisin, or almost any kind of fruit pie, is good. Take one slice after the midday meal and a big slice after the evening meal.

Eggs—the harder they come the better, if you know how to eat them. A hard-boiled egg is generally better than a soft-boiled egg, because you instinctively chew a hard-boiled one, while you just gulp the soft ones. If you know how to eat the soft ones, it is just as good as one cooked hard.

Steaks—every one should have his steak served frequently. If you like it rare, have it rare but often. If you like steak well done, have it well done. One is as good as the other. There is no real choice except in matter of taste.

If that exhortation does not make a man feel strong there is certainly something the matter with him.

Shall There be American Beef for Americans?

But even if the present regulators of the country do decide that the Italians shall furnish the timber for American lemon pies, is it at all necessary that we should depend upon South America for mince pies and for the beefsteaks which Dr. Hutchinson prescribes so gloriously? There certainly seems to be danger of it, for the rulers at Washington seem to be disposed to try again for "free meat" which they lost because President Taft rose in their trail at the last meeting of Congress. It is really telegraphed from Washington that free trade in meats is indicated as part of the program for the special session for tariff revision which will assemble in March. Members of the Committee on Ways and Means claim a majority sentiment in favor of free meats and a strong trend toward free cattle. At the hearing in Washington this week there appeared in opposition to such a scheme S. H. Cowan of Fort Worth, Texas, as spokesman for the cattle industry west of the Mississippi river. Mr. Cowan said that such a plan, if adopted, would mean a flood of cheaper meats from the South American ranges, and pictures a ruin of the industry in Texas.

"Didn't all the Texas Democrats in the House vote for free meats last session?" asked Representative James of Kentucky.

"Yes," said Cowan.

"And all of them were re-elected?"

"Yes."

"Then you are going counter to the wishes of a State?"

"No," replied Cowan, "the Democrats in Texas always vote the Democratic ticket regardless of such matters. Their allegiance to the party is too strong to do otherwise."

But Texas is not alone in this enterprising be-

havior. There are other States which voted more or less in direct opposition to State industries. Probably the best solution will be to carry out the program. As we understand it, the best vaccination is one which takes good and hard. If there is anything which will give Texas immunity against free trade for a long period it will be free cattle!

Vain Help for the Idle.

We have protested so often against the notion that the best help for the idle man is to give him a public farm to work on, that we need only protest briefly against the plan of Senator Larkin, who has introduced at Sacramento a bill permitting County Supervisors to establish labor farms, on which the unemployed may go to work. The bill provides that upon petition of 100 voters in a county the Supervisors may levy a tax and buy a farm to cost not more than one-tenth of one per cent of the assessed land valuation of the county. They shall appoint a superintendent for this farm, who shall have charge of it, and who, when work is available on it, shall employ any man who wants to go to work. Workers are to receive \$1 a day and their board and lodging, and may remain at the discretion of the superintendent. The farm must be self-supporting after the first year.

The fallacy in the reasoning which underlies such a recourse is that physical labor is the ruling factor in farming. It is not the labor, but it is the spirit and wisdom which direct the labor which shape the result. There is no superintendent who can direct a bunch of heterogeneous laborers in agricultural production so that they can earn one dollar per day in addition to their cost of living. He would do very well if he could take such a lot of laborers and make them earn their keep. As for making such a farm self-supporting after the first year, or any year whatever, is an economic impossibility. And to use such labor in farming is the very worst place to get an earning for it, because farming is too complex in its nature and is governed by economic conditions over which it has no control. Our grandfathers were wiser; they knew that something like road-making, for which a foreman could furnish the gang under him both instruction and direction, because of its simplicity and concentration within eye-shot, was the only line in which a county could hope to recover its outlay in earning for such labor.

Queries and Replies.

Querists must submit full names and addresses.

Field Mice Under the Snow.

To the Editor: The field mice have been playing havoc with our young eucalyptus of which we have many acres, girdling them to a width of several inches, and killing the trees. We are wondering if there is any preparation which is used for painting the bases of the trunks that will prevent the mice from nibbling. Do you know of anything, specific or otherwise, that could be used? And will you let us hear from you about this?—C. K., Glen Ellen.

We apprehend that your snowfall will not last long enough to give the mice any great advantage over you. In the East they have to go to the trouble of banking up the earth around trees to bring it near to the surface so that the mice cannot work well under the cover of the snow, but this would not be practicable in California, where we have so many trees and so little snow. We believe the mice could be prevented from gnawing by painting the base of the tree with a solution of commercial aloes, one pound to four gallons of water, which is so intensely bitter that it deters

rodents and is quite successful in protecting the bark from rabbits, and foliage also is protected from rabbits when the aloes solution is sprayed upon the leaves and twigs. If you still think you ought to adopt such treatment, this would be effective, although the amount of aloes and labor required to treat such an acreage as you have of eucalyptus trees would be something appalling. It would probably be wiser and cheaper simply to replant destroyed trees and perhaps to give attention to the breeding of more cats, owls and other natural enemies of mice. You can readily poison field mice by the use of materials which have been very successful in Nevada and which are described in detail on page 16 of the PACIFIC RURAL PRESS of January 4.

Curing Citron.

To the Editor: Can you kindly let me know, through the columns of your paper, of some way to cure citrons at home? I have a fine tree that has borne very fine-looking fruit for the past two years, but have never met anyone who could tell anything about treating them—C. T. W., Arroyo Grande.

An outline for the preparation of candied citron is as follows: The fruit, before assuming a yellow color, and also when bright yellow, is picked and placed in barrels filled with brine, and left for at least a month. The brine is renewed several times, and the fruit allowed to remain in it until required for use, often for a period of four or five months. When the citrons are to be candied they are taken from the barrels and boiled in fresh water to soften them. They are then cut into halves, the seed and pulp are removed, and the fruit is again immersed in cold water, soon becoming of a greenish color. After this it is placed in large earthen jars, covered with hot syrup, and allowed to stand about three weeks. During this time the strength of the syrup is gradually increased. The fruit is then put into boilers with crystallized sugar dissolved in a small quantity of water, and cooked; then allowed to cool, and boiled again until it will take up no more sugar. It is then dried and packed in wooden boxes.

Oak-Root Fungus.

To the Editor: The piece in the last issue of the RURAL PRESS by H. S. Fawcett relating to root-rot fungus was quite interesting to me. I own land which has on it several oaks, also some old stumps. I expect to plant it to pears, apriots and prunes. Are all oak trees or old oak stumps infected with the fungus? How can I be sure as to each or all of them? How soon after planting would its effects on trees be likely? I know of old orchards planted where many oaks were removed and there seems to be no bad effects. It would be next to impossible to get out all the roots in removing the trees and stumps, and I would appreciate any advice you may give.—L. B., San Juan.

Do the best you can and take the chances. Get out all large roots and gather up all fragments made by stump extraction. Plow deeply and remove all roots torn up. Keep track of the places where trees or stumps were, and dig and clear large holes in such places so as to get rid of all wood which will decay. Then plant the whole piece as you desire. You may have no trouble. Trouble generally comes from shallow work and carelessness about removing wood capable of decay. It is sometimes slow to appear. If you lose a few trees, you will have to grin and bear it. It will cost less than to try to upset the whole earth.

What to Do with Frosted Oranges.

To the Editor: What is the best plan of treatment for frosted orange trees? The crop will be a total loss, although quite a good deal of the fruit is juicy and eatable at present, but more

of it is peck-marked and does not taste good. It does not show any tendency to fall off the trees, however. Should it be picked off, thrown on the ground and plowed under? Should this be done right away or later? Are valeneias likely to make a recovery? I have a suspicion that they got slightly touched last year but recovered, as they were perfectly good at picking time. I think the trees are going to lose most of their leaves. They are getting more and more curled and discolored, and will eventually fall, I presume. I supposed pomeloes to be tenderer than oranges, but, strangely enough, the best-looking tree on the place, with leaves almost untouched, is a grapefruit.—Grower, Hemet.

Theoretically, unsound fruit should be removed as soon as its injury can be conveniently detected and worked into the soil by cultivation; never, however, being allowed to collect in masses, which is productive of decay and which may be injurious to roots. How great practical advantage there may be in the removal of such fruit as compared with the cost thereof, we are not sure. It is usually held that it takes about three weeks for fruit to demonstrate its injury or disposition toward recovery, therefore it is too soon to prophesy what the valeneias may do for themselves. Of course if trees are injured sufficiently to lose most of their leaves, the fruit should also be removed if it shows a disposition to hang on. This will be a contribution to the strength of the tree and its ability to clothe itself with new foliage.

Slugs in Clover Lawns.

To the Editor: Kindly tell me what means I must employ to eradicate or at least help to reduce the little black or gray slugs that infest my lawn of white clover and have almost destroyed it. I am about in despair because of their ravages. I have put out cabbage leaves at night, taking them in at 9 or 10 p. m. and have caught as many as 500 snails of a night, but they breed so rapidly this catch makes no apparent impression on their numbers.—B. C., Larkspur.

As still-trapping seems to be inadequate, you have the chance of trying young chicks or ducks, which are very capable and do no harm if you keep their mamma's in coops adjacent. To reduce the trouble, you should adopt a radically different summer treatment for your lawn. Cut frequently and water at long intervals, not oftener than once a week or two, but give a good soaking so that the soil be deeply penetrated, and then the clover will grow without surface wetting except at long intervals. If you keep the ground surface and foliage as dry as you can without bringing the plant into distress, you will have fewer slugs during the following rainy season.

Sorghum and Alfalfa.

To the Editor: I would like to know the best time to sow Egyptian corn; also how much per acre to sow. How many pounds per acre of alfalfa seed should I sow, and what is the best time for sowing it?—J. W., Melones.

All the sorghums, of which Egyptian corn is one, must be sown after frost danger is over—the time widely known as suitable for Indian corn, squashes and other tender plants. Sow thinly in shallow furrows or "marks," $3\frac{1}{2}$ or 4 feet apart and cultivate as long as you can easily get through the rows with a horse. About 8 pounds of seed is used per acre. If grown for green fodder, sow more thickly and make the rows closer, say $2\frac{1}{2}$ feet apart.

As the question of fall sowing is not involved, you can sow about 20 pounds per acre of alfalfa, from February to April, according to frost dangers and condition of ground, which should be warm and moist. When late sowing is desirable, plowing should be done earlier, with cross plowing and working down fine just before seeding.

Commercial Future of the American Apple.

[Written for the PACIFIC RURAL PRESS by JOEL SHOMAKER.]

The 1912 apple crop of the United States, approximated 50,000,000 barrels, or about 125,000,000 Western boxes. Shipments were made to the countries of Europe, Asia, Australia, South America, New Zealand, Alaska, and the Oriental Islands. The growers received low prices for their fruits and were generally dissatisfied with financial results from orcharding.

Census figures indicate that the production of apples is not so large as it was ten years ago, although the population, or consuming public, has increased at a rapid rate, during the same period. Ten years ago we had 201,794,000 bearing apple trees, and on April 15, 1910, when the enumeration was made, our apple trees numbered only 151,323,000, being a decrease of 50,471,000, or practically one-third of the producing apple area.

Our national apple harvest should bring a combined cash income of \$100,000,000, and add to the profit-paying industries of the country where fruits are grown, and to the neighboring towns and cities. That is the standard fruit—one that grows in every State—and should be the leading producer of wealth in the orchards of the nation. The American farmer is worth about \$10,000,000,000 a year to the commerce of the nation, and the apple is one of his greatest possible fruit assets.

The Pacific Coast apple-growing States contributed about 27,000 carloads of apples to the national fruit output. The crop of those States aggregated 17,000,000 boxes, or the equivalent of 7,000,000 Eastern barrels. In those States, apple-growing has become a fad, under the modern irrigation projects, and thousands of acres are being planted to apple orchards every year. In view of the fact that many apple orchards are not touched by pickers, and hundreds of growers did not get any profit from their fruits, the question of the future in commercial apple orcharding is one of more than ordinary prominence.

During October, the harvest month for fall and winter apples, I visited several thousands of acres of apple orchards in the Pacific Northwest, spending thirty days traveling through the Okanogan region of Washington and British Columbia and inspecting the irrigated and non-irrigated orchards, for the purpose of comparing fruits and testing the marketing qualities of apples grown under varying climatic and soil conditions.

At Wenatchee, on the Columbia River, I saw men and teams, working day and night, hauling apples to the Great Northern Railway depot, for consignment to various Eastern city markets. The railroad company could take out about fifty carloads every twenty-four hours, and the boxes stacked up awaiting the time for loading into cars always ranged about three times the capacity of cars furnished. At the rate of shipment, averaging fifty carloads per day, the apple crop of the Wenatchee Valley would require seventy-four days for moving from producer to consumer.

The fruit business in that irrigated district has reached the highest point in commercial valuation. Land, planted to apples, sells at from \$1,000 to \$3,000 per acre, and in some instances the owners of highly improved small tracts have received figures that brought the price up to almost \$4,000 per acre for the land actually planted to bearing fruit trees. It is certainly no place for a poor man, seeking a home in the West, to locate and hope to build up a successful orchard, but rather a retreat for the man who has made a fortune, in the commercial world, and desires to retire to the quietude of a small fruit farm and live under the shade of his own vines and apple trees.

A railroad is being constructed, along the banks of the Columbia River, to connect the Okanogan fruit sections, of Washington and British Columbia, with the outside world. The proposed line passes through an irrigated region, formerly covered with sagebrush, and yet in the native wilds, with numerous Indian teepees and families of redmen and their wives and children scattered throughout the Indian Reservation, but land

prices range from \$500 an acre up to three times that amount. The entire country seems to be planted, or in the stage of planting, to apples.

The spirit of gambling appears to be ever present in the minds of many Americans, who seek to get something cheap and sell it for a high price, without adding materially to its original worth. That is noticeable, to a great extent, among the land dealers, irrigation promoters and town builders of the West. They take advantage of the 'Back to the Soil' sentiment, which has been overworked in city, town and country, to sell tracts of supposedly good fruit lands at greatly inflated prices. And they succeed in a most surprising manner.

Orchard planting has practically destroyed all the first principles of farm building in some of the irrigated sections of the West, and all energies are bent toward the developing of fruit lands. In the famous Okanogan region I saw hundreds of acres of young apple orchards, standing in fields formerly planted to alfalfa and utilized for cultivated farm crops. The spirit of farming had given way to the more tempting power of speculation. Dairy farms were forgotten in the rush to get apple orchards, to sell to Easterners in search of profit-paying and highly developed properties.

The realty business has developed a peculiar investment plan that applies, with particular force, to the fruit lands of the Pacific Coast regions. Agents travel about, among the payroll men and women of towns, cities and industrial centers, and offer alluring propositions for making money by purchasing lots in some of the prospective towns to be built up by the tributary orchards. Outside lots in several Canadian Northwest towns are offered, and are being sold, at from \$150 to \$250 each, the buyers simply selecting their investments from blue-print maps. Profits are to come by reason of surrounding development.

The State of Washington has an area of about 200,000 acres planted to apple orchards. Oregon, Idaho and California have large tracts devoted to commercial apple growing, and every western irrigated state is increasing its acreage of orchards with the coming of each year. What will be the apple crop of 1920? What will be done with the crop of 1920? These questions are troubling the growers, dealers and transportation agencies. The consumers are not worrying over the matter, as they will be satisfied with large crops and low prices.

The Pacific Fruit Express Company, of the Pacific Coast, will receive 1,000 new specially constructed refrigerator cars during the early part of 1913. That will make their car holdings total 11,000, and represents an investment of \$15,000,000 for modern marketing facilities to handle the fruit output of California, Oregon and Washington. The regular railroad cars, owned by the Great Northern, Northern Pacific, Southern Pacific, and Milwaukee lines, penetrating the Pacific Coast fruit-growing States, and those that can be borrowed from distributing lines, merely take care of a portion of the apple shipments.

There must be something done, throughout the entire apple-growing sections of the United States, to construct cold-storage warehouses for holding the fruits until the market demands justify shipment. Too many apples are picked and put on the market at the same time. The consumers lose interest in apples and refuse to buy them, especially when they are offered at low prices and obviously for the purpose of getting rid of them at any price. Transportation agencies cannot carry the apple output of newly developed irrigated districts, because their hauling capacities are limited and pre-empted by older settled districts.

Waste is one of the greatest enemies to success on the farms and in the orchards of the United States. Tons of apples remain on the trees, or are left to decay on the ground in bad financial years, and the profits of the orchards are lost because of neglect to care for the waste. Growers must establish canneries, cider and vinegar factories, jam and jelly works, and other plants for evaporating,

canning and utilizing the valuable fruits now going to waste in almost every fruit-growing district of the nation.

Apples are national daily food necessities because of their medicinal value. Apples contain phosphoric acid and are valuable brain food. The juices of apples excite the liver to action and promote sound and healthy sleep. Apples are good for the nerves, and will not cause dyspepsia if eaten at any time, day or night. Apple juice prevents indigestion and throat diseases. Every physician will tell his patients that they should eat more fruits, and especially more of the sound, ripe apples, whether from the East or the West, or from irrigated or non-irrigated orchards.

An educational campaign is necessary to introduce apples among the masses of people in this country and throughout foreign lands, and the consumers must be informed on those subjects. An advertising propaganda should be organized and kept up until all the nations of the earth know about the merits of the apple—the American apple—and the people are ready and willing to buy the products of the apple orchards.

Nellita, Washington.

RULES FOR THE ROAD.

To the Editor: The time has come when we farmers as well as all others should know the State law regulating the use of the public roads as to which is the right side to turn out on to allow a vehicle to pass that is coming up from the rear. Which side does the law say to pass on?

I have always maintained that I should turn to the left side of the road, allowing the vehicle coming up from the rear to pass me on the right, as in so doing there would be no chance for a head-on collision in case I were to meet a vehicle. I have been told that this is wrong and that I should turn to the right, allowing the vehicle to pass me on the left. I would be very glad if you would tell me which is right, in your paper.

Durham, Cal.

C. C.

Answer by Associate Editor.

You are too considerate of the man driving up from behind, according to the law or custom of the case. The rule seems to be to go along on the right side of the road and let the fellow coming up behind pass as best he may on the left.

We are not sure that there is any statute law on the case, but when accidents occur the man that goes contrary to custom is held by law to be accountable. The custom of the road is that the automobile or team coming up from the rear shall pass on the left, that is toward the center of the road, the person being overtaken staying at the right, just as if he were meeting a team.

It appears to be thought better, in spite of what may be said to the contrary, to keep to the right all the time. Then the person coming up from the rear can see how close he is going to the wheels of the other rig. Also there is no occasion for the man being passed changing his course suddenly, as he might if a different rule would go into effect.

For example, if the driver wanting to go ahead would go to the right, over to the curb he would have only a given space between team and curb to drive in. The other is not required to know what is going on behind and might see fit to go over to the right also on account of meeting a team or otherwise. That would make a collision more likely.

At all events, the book of rules, as well as ordinary practice, require the driver to keep to the right of the road at all times, while the driver wishing to go ahead is supposed to go to the left of those whom he passes and the best a person can do is to do likewise.

Warrior's Heritage.—We all know that the European custom is for drivers to turn to the left when they meet, although here in America we turn to the right. Our Mr. Gregory informed us today how this practice originated. It is a heritage from the old knights who used to go around in armor hewing each other to pieces, rescuing forlorn damsels from fierce giants, and so on. They were about the only fellows that rode horses and had to decide which way to turn.

These knights were so used to wielding their trusty swords that they always wanted to have

their sword arm where it would do the most good, so when two knights met they each turned to the left and thus had their swords handy for action if necessary. Even after swords were merely ornamental and vehicles largely replaced saddles the custom persisted in those countries where knights once held sway.

When America was settled swords were rather out of fashion and people got to turning to the right. Now we have no swords to dodge, but our higher civilization has brought automobiles, which are perhaps more dangerous, to the pedestrian at least, who often is not particular which way he jumps as long as he keeps out of the way.

Viticultural Vicissitudes.

[From an address at the Fresno Fruit Growers' Convention, by FRANK T. SWETT of Martinez.]

If the 1912 prices for Tokays and Malagas had been better by \$300 a car; if the wine grapes of the San Joaquin had brought \$14 a ton instead of \$6 a ton; if raisins were above instead of below the cost of production—it would be a delight for us all to consider the best ways of increasing and making permanent a greater vineyard acreage in the vast valleys of the interior.

It would then be worth while considering the best ways of controlling that capricious and unsatisfactory pest the phylloxera, which works with unremitting energy in the coast counties, where grapes sell for \$16 a ton, but takes things easy in the sections where grapes are worth only a trifle more than the cost of picking and hauling.

Were it not for the work of the phylloxera there might be an over-production of grapes in the Coast counties, but owing to its steady progress hundreds of acres have gone and are going out of existence each season, so that prices bid fair to be good for many years to come.

The great viticultural industry of California, with its triple alliance of wine, raisin and table grape production, is passing through a period of deep and serious depression. Previous to 1907 it had its seven fat years of prosperity, but since then there have already been five years the reverse of fat, if financial returns, and not tonnage, be considered.

Results of Plunging.—With a great stampede of planting, rash and inconsidered, beginning about 1903 and ending in 1907, the production of raisins jumped from 90,000,000 pounds in 1905 to 130,000,000 pounds in 1911; that of wine from 26,000,000 gallons in 1905 to 50,000,000 gallons in 1911, and that of table grape shipments from 1,600 carloads in 1905 to 6,300 carloads in 1911, almost quadruple.

There are about 50,000 acres of table grapes in California, mostly in full bearing. Assuming an average of five tons to the acre, this would give about 250,000 tons of grapes, or the equivalent of about 20,000 carloads, if all were harvested and packed.

But this year only about 6,300 carloads were shipped East, and perhaps 700 carloads to 1,000 carloads were consumed in California, accounting for about a total of 7,000 carloads. During October and part of November, markets were badly glutted. Increased shipments would have still further demoralized markets. What happened to the remainder of the table grapes? An immense tonnage was either turned into the wineries at utterly unremunerative prices or was not picked at all.

The table grape business is a little brother of the wine grape business. While at first sight it might appear to be independent of it, anybody can see that if the wineries did not consume the great surplus of lower grade table grapes, these grapes would be forced into the table grape markets, to still further demoralize sales.

Existing markets are not consuming, under present conditions of packing and distribution, much over 7,000 carloads, even at low prices. With an acreage sufficient for 20,000 carloads, what is California going to do with the odd 13,000 carloads, for which no present markets exist? In the face of competition with the 200,000 tons of Concord and other grapes grown in New York, Pennsylvania, Ohio and Michigan, can we look forward in the near future to doubling or trebling the consuming of our California table grapes?

What Can Be Done?—What can the table grape people do about it? If wine grape prices were attractive, it would be easy to graft a large acreage of Tokays and Malagas, in places where quality is low, into Petite Sirah or other desirable

types of wine grapes. But at the offered contract price, which I am told is \$10 a ton, there is no inducement whatever to do this, for on most land, \$10 a ton is below the cost of production, if interest on the investment is figured in.

In certain localities where soil conditions are favorable neither to the production of large crops of table grapes nor to high quality, some reduction of acreage is inevitable. In fact, frequently these places are well fitted for the production of paying crops of alfalfa. Through the extension of irrigation ditches, or the installing of pumping plants operated by distillate or electric power, it is now becoming possible, in many localities, to thus produce paying crops of the safest and surest crop in California—alfalfa.

The Product Must Be Good.—High-grade table grapes usually sell at a profit; second grade grapes, such as poorly colored, compact clustered Tokays, which mould and rot in the center of the bunches in transit, usually sell at a loss. If a grower finds that one part of his vineyard produces this undesirable type of grape, the sooner he digs out or grafts that portion, the better. There are many vineyards now for sale at about \$200 an acre which, if in alfalfa instead of vines, would be worth \$300 an acre. Some of the best alfalfa land makes the poorest grape land. Type of soil has much to do with the selling price of grapes.

In the New York sales catalogues there is frequently a difference of \$300 a car in sales of grapes shipped from the same district, packed the same, handled the same, and the same variety, but grown on different soil. One line will be selling for \$700 to \$800 a car, returning no real profit whatever, while another line, grown on different land, only a few miles distant, will sell at \$1,100 to \$1,200 a car, netting the grower handsome profits.

So great is the difference in selling prices that it is quite likely a few years from now further planting of table grapes will be carried on on the black sands south of Lodi; while at the same time the grub hoe may be at work on other vineyards almost within rifle shot.

The grower who is up against it financially, owing to the disastrous prices of the last five years, cannot afford to make sweeping changes. In many cases his ready money and his credit are almost exhausted. The small vineyardist, owning ten or twenty acres, and nothing else, situated where he cannot grow quality grapes, is in a serious predicament. He needs all the counsel and guidance and help that can be given him, not only by the county horticultural commissioners and by the Farmers' Institutes, but also by his local banker. The one saving fact with many a California vineyardist is that, owing to the influx of land-seekers into our State, and because of the prosperous conditions of our dairy and live stock industry on alfalfa lands, the selling price of land has doubled in ten years, thus recouping some of the losses of the vineyard.

Importance of Mixed Farming.—There is one striking feature of much of the small planting in our interior valleys, even on land that is fitted to grow diversified crops. There are too many one-crop tracts; one cannot call them farms. The settler is too apt, on the shallow advice of some glib real estate agent, to put all his eggs in one basket. He is told that this crop or that crop is going to net him one hundred or two hundred dollars an acre. This sounds very good indeed, and he risks his all on a one-crop venture. Perhaps the whole neighborhood does the same, and the evils incident to monoculture come to pass. The district may have but one main resource, and if anything happens to that a blight falls on the whole community.

There is a special justification, on the small or-

chard or vineyard, for one or two or three acres of alfalfa instead of all fruit or grapes. The farmer's own family affords a home market, at full retail prices, for all the milk, butter, veal, pork, chickens and eggs raised on that acre or two. Allowing the prices that would have to be paid for these necessities, the indirect products of two acres of alfalfa are well worth a hundred dollars an acre for home consumption. The substitution of alfalfa for a fraction of the vineyard does not necessarily mean much permanent reduction in the tonnage of grapes shipped off the place, for the fertilizer produced will tend to increase or at least maintain the annual production of the vineyard.

Many thoughtful men are convinced that some reduction of the table grape acreage in sections where grapes are of medium or poor quality, ripening only during the six or eight weeks of glutted markets, is inevitable. Let us hope to see this reduction come about by degrees and in a rational way, and not as a panic of destruction, as may be possible should one or two more disastrous seasons follow. In some instances growers are wisely planning to plant suitable fruit or nut trees, digging out every third vine, with the intention of eventually removing the remaining vines when the trees are old enough to bear.

Standardization.—Three seasons ago a movement of immense importance to our fruit and grape growers was initiated by a clear-visioned man who perceived the all-important truth that without some concerted movement to raise the standard of our grape and fruit shipments our markets could not be maintained nor extended. Like all reforms, standardization has had its difficulties, but on the whole, as growers are becoming educated to its necessity, it is winning out, and must eventually become widely established. The early shipments of table grapes of established standard this season, previous to the September rain, sold at handsome prices, fully justifying standardization.

Unfortunately, in September most of the grapes of California were soaked by a heavy rain. The interior berries of the more compact clusters were softened by the invasion of the botrytis, or slip-skin mould. It is very difficult for the packers to find all the berries injured by this fungus, as the color and texture are not always perceptibly affected. It was not always possible for the inspectors to determine which grapes would carry in good shape and which would arrive with whiskers on them. As a result some thousands of cars failed to arrive in satisfactory condition. This has caused some criticism of standardization, but unjustly so. It may be years before the same thing will happen again.

In the meantime we shall hope that the United States Department of Agriculture will find some method of controlling this fungus in the vineyard. If an economical method of prevention can be worked out, it will be of immense value in improving the keeping qualities of our table grapes in seasons when early fall rains prevail.

In spite of the general softening of grapes, however, standardization barred out a great amount of manifestly poor stuff. Growers are better educated for next year. It was an important epoch in California's horticultural history when the thesis of standardization was nailed to the door of the packing house by our far-sighted and courageous reformer and friend, the man who is helping solve some of our difficult economic problems, J. W. Jeffrey.

THE VALUE OF ALFALFA.

A very interesting sidelight upon the advantages of California in dairying comes from the account of the yearly record of Jean Armour, the Vermont Ayrshire, who recently completed a record of 20,174 pounds of milk in a year's test, containing 774.73 pounds of fat, equal to 904 pounds of butter. The cost of the food consumed during this time was \$168.58 and the interesting thing to the California dairyman is that alfalfa hay, which here is the most common and expensive feed there is, was valued at \$25 per ton. As a matter of fact it was so expensive that only 1500 pounds were fed during the year. With feed like that the California dairyman ought to have the best kind of a proposition.

The range of feeds used should be interesting, although the extensive variety and the amount of

concentrates fed is due largely to having a world's record cow on a special test. Jean Armour was fed 1100 lbs. gluten, 1500 lbs. alfalfa, 2200 lbs. clover hay, 200 lbs. cottonseed meal, 60 lbs. oil

meal, 200 lbs. cornmeal, 5000 lbs. ensilage, 1000 lbs. bran, 100 bu. beets, 900 lbs. ground oats and six months' pasturing. It is interesting to state that the latter was valued at only \$12.

Stopping the Leaks in Cattle Shipments.

[Written for the PACIFIC RURAL PRESS by
PAUL PARKER.]

Stock raisers will earnestly attend to the fattening of their cattle, see that they get only what is good and needful for the laying on of fat, yet when the stock are ready for market the farmers lose their diligence and discernment, and in a careless, negligent manner ship them to the stock yards. On their arrival, the once prime stock are found to be bruised and crippled, with a heavy shrinkage. Often a 1300-pound bullock in a 24-hour journey will shrink from 50 to 90 pounds, a loss that aggregates a large amount in a train load. A part of this loss can be cut down if proper precautions are taken; especially during the 24 hours previous to shipping. For proper feeding, watering and driving, all have a bearing on the way stock will stand a hard, tedious trip in cars.

Before driving a hoof, the shipper should have a thorough understanding with the railway company's agent as to the exact time the "empties" will arrive and at what hour the loaded cars will be taken away. Otherwise he is liable to put his stock in the crowded corrals and then wait for 10 to 18 hours before the cars arrive. And it is punishment to hold stock in a crowded corral for any length of time, with trains roaring and whistling by. They commence to shrink badly before they get in a car. When it ever happens that there is a misunderstanding as to the arrival of the cars, the shipper, if possible, should get a field close by where there is plenty of room, feed and water, and hold them quietly until the cars are "spotted." If there are no such fields to be had, it is better to string the stock along the country roads than wedge them into the railroad corrals.

Clean Cattle.—After the arrival of the cars is settled, the stock should be driven slowly to the corrals, at a pace that will not overheat and cause scours. For cattle not only shrink badly from scouring, but they also become very dirty and their appearance is not a creditable one when the buyers inspect them. On a road, hard or rocky, stock should be allowed to take their time, because, coming as they do out of soft feeding pens or fields, their feet are naturally tender. When hurried along these roads so that they cannot pick out their steps, it only takes a few rough places or pointed rocks, especially after a rain that has washed the dirt off the rocks, to bruise their feet so that they become foot-sore; and there is no treatment which causes stock to fall away quicker than putting them on cars in a foot-sore condition.

Likewise, when stock are being driven along a dusty road to the railroad, they should be allowed to pick their way, as then, not so much dust is kicked up. For cattle with their mouths and throats dusty-dry not only lose weight, but they drink large quantities of water, which, unless they are held until most of it passes through them, will make the ear floor unnecessarily slippery. Keeping the floor dry is the aim of every experienced shipper, because when not sure of their footing stock get nervous; besides, any sudden jolt will throw them down. Most of the broken hipped cattle taken out of cars at stock yards is the result of their feet spreading out on the wet floor and then being unable to move in a jam.

Mud makes slippery cars, and to prevent its being carried from slushy corrals, stock should be held away from them. Also, mud not only causes stock to slip, but it gives them a poor appearance when they arrive at the stock yards. Where cat-

tle pick up mud along a mucky road, the large pieces clinging to the legs can be jarred off easily by driving them over something solid and free from mud, such as a macadamized road or a platform.

Feed and Bedding.—One of the best preventatives against slippery ear floors is good bedding. Dry weeds, tules, straw, manure, sand and cinders are all used with success, but the best of the lot is sand or cinders on the bottom of the ear, with a covering of straw or dry manure. The straw makes a soft place to rest the feet and the stock do not get leg weary so soon, while the sand prevents slipping and absorbs the urine. On no consideration, however, use clay or alkali dirt, as they become soapy when wet and it is impossible for stock to keep their feet.

Another item that should not be overlooked in getting cattle ready for shipment is the feeding and watering. It is best to hold back their feed a little the last 24 hours, and when they are fed the last time before going on the cars, give them a full ration of dry hay; when they have finished it let them water and then put more dry hay before them. In this way, their stomachs are full and their thirst is slaked, and much of the water is absorbed by the dry hay so that it does not reach the bladder. This is considered better practice than watering the stock 6 or 7 hours before they get on the train, as they become too gummy by the time they arrive at the stock yards. No green grass or fodder should be given stock within 24 hours of shipping time, as it makes the floor of the ear wet and slippery. Even grass cattle coming off the ranges and fields should have a ration of dry hay go through them before they are loaded on the cars.

Loading.—The number of stock to be put in a car is based on the length of the journey and the size of the ear and the cattle. The better stock are matched according to size, the better they ship, as then the smaller are not crushed by the larger. Also, when a bunch of cattle come out of a car all the same size, they do not look to the buyer as though they were "odds and ends" of a community.

But where the shipper makes his greatest mistake is overcrowding his cars. This pound-foolish proposition loses thousands of dollars every year to the farmer. He figures that there is always room for one more, and instead of a comfortable 20 or 25, he will crowd 28 or 29 in a car. It may save him another ear, but when the accounting is made for cripples and shrinkage, he is the loser, and he blames his losses to the sudden stops of the train. It is possible, when the trip is short and the stops are few, to overcrowd a car, but at any other time it is foolish. Cattle should be placed in a car close enough together so that they cannot lie down, but yet far enough apart so as not to interfere with each other's movements. Where the cattle can be made to face toward the sides of the ear, there is very little danger of hooking each other at any sudden movement of the train. In this way, the cattle fall sidewise, instead of lunging forward.

Preventing Injury.—Most of the bruising and crippling of stock happens after they lie down or are knocked down to the floor of the ear. It is then that the other stock step on them, and the quicker they are put on their feet again the better. Here it is that a careful, fearless man is needed: one who will go into the ear and help the animal up; not one who will stand on the outside with his prod and jab all the stock within reach trying to get them away from the fallen bullock, bruising their necks and heads and frequently poking out an eye. Many of the stockmen in California and Nevada are insisting that the helpers who accompany cattle shipments spare the prod, and when

stock get down that they go into the ear through the end door and work their way around on the lattice sides to where the beef is; the other stock will naturally crowd away from the man, and the animal that is down has room to get up. In case the animal is hurt so that there is danger of it lying down again, it can be driven to a corner, where its head can be tied to one side and its rump to the other. It is the same way when stock fight in a car, two men by getting inside can work the belligerents to opposite corners, so that there is no danger of them hooking each other.

To take care of stock in this manner requires experienced men, but many farmers overlook it. They send boys or farm hands who are willing to accompany the stock for the free transportation, but who know nothing of shipping stock. Henry Miller, the land and cattle king, has men who have been in his employ over 20 years, who do nothing else but ship cattle. He will send his stock shippers from San Francisco to El Paso, Texas, after a train load of cattle, to insure their being handled properly, and the saving of a few head from being killed and shrinkage makes it a profitable investment. The trouble with the inexperienced man is that he does not see the necessity of inspecting his cattle every time the train stops or goes ahead, even for 100 yards, but instead he remains in the caboose playing cards or sleeping.

Handling the Train.—Another duty of the stock shipper is to see that the brakes on the cars are working properly so that the train does not stop suddenly and throw the cattle against the ends of the cars. Also, that the engineer does not start quickly or throw his brakes on too suddenly; occasionally a judicious distribution of cigars or money among the train crew will prevent this. Another common occurrence to be guarded against is placing the cattle cars in the train so that at every station they are switched around the yard. See that the conductor places them where they will not be disturbed every time a car is taken off or picked up.

Where cattle are going to be on a train for several days, to get them to their destination in the best possible shape, at the most, they should not be allowed to stand in the cars over 28 hours at a time, although some of the States have 36 hours the limit. When such stock are taken off for food, water and exercise, they should be allowed 24 hours; sometimes cattle will sleep 10 or 12 hours steadily so tired are they, and the rest of the time to eating and exercising.

Cows and Bulls.—In shipping cows, never permit a big bellied animal to get in a car, as they bruise so easily that they are worthless for beef. It pays to sell them locally, no matter what the price. Care, too, must be exercised in putting cows in cars, as they are given to fighting as much as bulls. It is either necessary to crowd them so that they cannot get their heads down to hook, or mix a goodly proportion of steers with them, at 10 steers to 15 cows. The cows, then, can keep out of each other's way. The steers, too, have a quieting influence on them. But the disadvantage of this method, is that the steers will attempt to ride the cows and bruise them on the back.

Bulls are handled in the same way as cows. They are packed rather close, so as not to give them room to move about or fight, and their horns are sawed off.

In shipping weaned calves, yearlings or two-year-olds, they are easier handled, both in driving to the cars and going up the chute, if they have a few older cattle with them. Otherwise, they will wear themselves out and the horses used in driving them. If necessary, the older stock can then be driven back to the farm. Unweaned calves should be handled in the same way. Their mothers should not be taken from them until right at the cars.

HOW TO BEGIN TO GET BETTER COWS.

The Kentucky experiment station gives advice on building up a dairy herd in this way: Use care in selecting cows. The beginner should start with good common or grade cows, which can usually be picked up in the neighborhood at prices ranging from \$50 to \$65.

Mate these cows to a pure-bred bull of one of the dairy breeds. The value of this bull depends upon whether his mother and his sire's mother

were large milk and butter cows, also upon the dairy merit of the daughters of his sire and grand-sire, and of his dam and granddam; also of his sisters. Frequently bull calves of this description can be bought from breeders and dairymen at very reasonable figures.

The heifer calves obtained by mating such a bull on good heavy milking cows of common breeding are almost certain to develop into high producing dairy cows. By continuing the use of good bulls from selected cows, improvement will be continuous and sure. A herd can thus be developed on the farm at a small cost.

Third, we wish to emphasize that, for the beginner, pure-bred females are not necessary. Such high-priced stock should not be used until one first learns to handle grade cows successfully and is convinced that he has the capacity and aptitude to attain results in breeding, and has the ability of salesmanship, and a good demand for his pure-bred stock. Few men have the ability to make a

financial success of breeding. One should not go into the business. One should grow into it.

While for the beginner pure-bred females are not necessary, the use of the pure-bred and well bred bull is absolutely necessary to attain best results.

Starting in the business with grade cows, a registered cow may be added from time to time as circumstances permit. These should be heavy producers and from good milking strains, otherwise they will give no better results than scrubs; in fact, there are a great many scrubs and misfits among registered cattle. Avoid the use of such cows.

By pursuing the method outlined above, a herd of high producing registered dairy cattle may be assembled at a very moderate cost. Such is the method sanctioned by common sense and good business judgment. Hundreds of dairymen all over the country have followed it and have attained marked success.

by the breed associations who have this matter in charge.

CALIFORNIA'S PRIZE WETHER LAMB.

The winning of the University of California of the grand championship at the International Live Stock Exposition with the Southdown wether lamb shown in the accompanying illustration is something for which Californians may congratulate themselves. Whatever objection there may be to the educational institutions showing at the State Fair in the breeding classes there can be no objection to competing in the fat-stock classes, but the contrary. It is the business of such an



Prize Wether Lamb Grown at University Farm.

Live Stock Progress for the Fair.

[By OUR ASSOCIATE EDITOR.]

The important preliminary work that will show at the Panama-Pacific Exposition is what is now being accomplished. It is the arrangements that are being made now that will count, and it is the stockman that is laying the best foundation that will walk off with the ribbons. For this reason the progress of live stock work at the Exposition is of big importance just at this time.

D. O. Lively, the Live Stock Commissioner, has recently completed a long trip through the East, preparing for the live stock exhibits. About 50 meetings were attended of pure-bred stock associations, and without exception all of the live stock associations are going after the methods that will make as fine a display as possible of animals of their particular breed. Several of these associations have already had their annual meetings and made their appropriations for awards. These will amount altogether to approximately \$75,000, aside entirely from the money put up by the directors of the Exposition, or \$25,000, and the money appropriated by the States for prizes for stock shown from the State.

State Prizes.—Competition from the different States will be keen, and every State which is interested in pure-bred stock to the extent of sending exhibits will probably put up a good deal of money. There never has been a time when so much interest was being shown in good stock. Letters have been received from States as far off as Maine, stating that the writers were intending to try for ribbons. From Vermont, New Hampshire, Massachusetts and Connecticut, to say nothing of the States a little nearer, a number of fine herds will be represented, and the State legislatures will appropriate sufficient money for prizes for State stock to go a big distance toward paying the expenses of exhibitors. New York is thinking of putting up \$50,000 for prizes for her citizens.

The exhibits of Eastern stock will not thus be limited to the big fellows. They will be the cream of many herds. This is especially true since there is big competition among States and communities for a reputation for fine stock of certain kinds. Syracuse, New York, has a reputation as being a Holstein center, and it would never do for New Yorkers to let the Wisconsin men show up with more exhibitors or better stock, and so with other breeds and other States. There is no fear but what the best kind of stock will be shown and lots of it. It is up to the California breeders to be represented in such number that the Eastern stockman will think that every other stockman is a breeder of pure-bred animals that will stand in any company.

Western breeders are already making Easterners wake up. The Smith-Mills Holstein herd of Spokane was one of the outstanding features of the National Dairy Show this year, and the Harding herd of Longwood sheep of the Willamette valley cleaned up most of the blue ribbons at the State shows. Added to this is the reputation that our dairy cows have for performances, and the Easterners are going to see that Western breeders don't take all their trade from them.

Cavalry Features.—While in the East Commissioner Lively looked into the matter of having a world-wide competition of cavalry horses, and it seems probable that this will be done, all nations sending some of their cavalry for competition. This is a matter of great importance to the nations. There are such competitions held now. This would be particularly notable for its extent.

In the United States and elsewhere there is questioning as to the type of horse that makes the best mount. Commissioner Lively states that several millionaires may go into the proposition of backing the different breeds, such as Thoroughbred, Morgan, Arabian, etc., having representative animals provided for a picked squad of U. S. cavalry, and after these animals have been given for two years the same care and training under army conditions a competition between them would show better than anything could what type of horse was best to breed for this purpose.

Attendance.—Just what the live stock department will mean to the Exposition is indicated in the way people attend the big stock shows. At the International in Chicago recently in the eight days there were 600,000 persons paid to pass through the gates in spite of the fact that the show was out at the stock yards and not convenient of access for the average man.

At the National Dairy Show during the week it was going on, 300,000 persons passed through the gates, and at a two-day poultry show the paid attendance numbered 37,000.

The poultry show at the 1915 fair will hold 12,000 birds. This and a display of live stock that will excel the International, the National Dairy Show and all other stock shows combined will make the drawing power one of the features of the fair.

Milking Short-horns Forward.—The 1915 fair is planned to be the beginning of a new era for the milking Short-horn. The Short-horn men have always claimed that the breed was equal to the best for dairy purposes and excelled all other breeds for butchering after the milking days were over, and, furthermore, that the calves were of the greatest value for veal or beef in case they were not to be kept for dairy purposes.

Such claims have been given rather minor considerations while the straight dairy breed men have been holding official tests, picking out the best producers and developing the milking capacity to the utmost, while the pure-bred Short-horn usually was valued on her worth for beef.

A meeting of a large number of Short-horn breeders interested in the milking side of the breed was recently held in Chicago to remedy this condition and a call has gone out for all owners of milking strain Short-horns to let their interest be known.

C. H. Otis, Cleveland, Ohio, has been appointed to see about this matter. The best milking Short-horns in the country are to be gotten together for the Exposition to prove to the satisfaction of breeders and others the value of milking Short-horns on the dairy.

Arrangements for the milking contests at the fair have not been completed. In order for the tests to be official they will have to be conducted

institution as the University of California to keep good stock and equally their business to follow out the raising of young stock for the market in the best possible way. Their success is shown in the condition of the steers, barrows and wethers. Unless both breeding and care are as they should be the stock will not make the showing it should. The winning of the championship with this wether shows not only breeding and care, but that California conditions are such as to favor the production of high quality mutton. This lamb was the sensation of the show. It was auctioned off at the close and brought 20 cents per pound, live weight from the Ohio State University.

DEEP WELLS ON THE WEST SIDE.

[Written for the PACIFIC RURAL PRESS.]

The west side of north and central San Joaquin valley is one of the finest and most flourishing sections of the State, though not anywhere near as well known as it might be. The earliest development of the valley followed the foothills of the Sierras in the search for gold and in the lumbering operations and the greatest acquaintance with the valley has always been on that side of the San Joaquin. The county seats have been there, the large towns, the main agriculture, the great water supplies for irrigating purposes, the great lines of travel. Climatically the west side is approximately the same as the east side of the valley, but the soil and the source of the soil is much different.

The great dairy centers of Newman, Los Banos, Gustine, Dos Palos with the other towns are on the west side and dairying is highly developed and very profitable.

Deep Wells.—Something that will have a great effect on the future development of the west side is the fact that from the deeper gravel stratas on the west side there are great amounts of the finest kind of water for irrigating purposes, easier to put on the land after the wells have been sunk than the less abundant water from the more shallow strata.

Two wells sunk on the chance of getting sufficient water at good depths have just been completed on the Oro Loma tract of 8000 acres, four miles south of Dos Palos, Fresno county, with the result of striking at depths of 660 and 770 feet, depending upon location, a strata of water that gives from 1200 to 1500 gallons of water per minute, enough to irrigate about a square mile of alfalfa or 1000 acres of diversified farms.

(Continued on Page 142.)

Trying Asparagus Fertilizers.

[By OUR ASSOCIATE EDITOR.]

For several months we have been going more or less into detail on the principles underlying fertilization in California. The next thing after getting at the principles of fertilization is the planning of a definite scheme of fertilization for a given crop on a given soil. We have been asked to lay out the scheme for the fertilization of some test plots of asparagus by a company farming in the Sacramento river delta. The method of trying such experiments might be noted by growers of other field crops.

There will be seven plots tested, each plot of about one and a half or two acres in extent. One of these will be left unfertilized as a check upon the others, and a second will be given a good application of stable manure. Upon the other five will be put such combinations of commercial fertilizers as will shed the most light upon the best way to fertilize the remainder of the property.

NATURE OF SOIL.—One of the fundamentals of a fertilizer is the nature of the soil, the other is the kind of a crop. This soil is a real peat, and the peat of the delta country, like other peat soils, is very largely vegetable matter, so much so that it will burn readily when dry. It has a corresponding deficiency in the rock powder that forms the basis of most soils.

That peat contains an immense amount

of nitrogen, so that it is many times richer in this element than ordinary soils, although the nitrogen is in a rather unavailable form. The deficiency in rock powder and the large amounts of water that originally were seeping through the peat have caused the potash and lime to be in very scant supply, and as a rule phosphates are very deficient also.

LIME METHODS.—Provided the soil is at all sour it would be safe to apply lime to all of the plots except the check. If it is not sour, some lime should be added to one plot anyway.

Test for acidity, a sour soil, can be made in two ways: first with litmus paper, and second, by the looks of the land. If the water standing on the surface or in the drainage ditches is brownish, the soil will be sour and the litmus test will be unnecessary. If the litmus test is to be used, take a strip of blue litmus paper and put it in a ball of moist soil, keeping it there for about an hour, and if it turns pinkish, the soil is acid and lime will be a benefit.

The lime in this instance should be ground limetstone, or air slacked lime. Burned or water slacked lime will burn out the peat, though it may be applied to soil that contains no humus to speak of on the surface. Ground limestone also is the cheapest form of lime as a rule.

CROP DEMANDS.—Crop requirements are the second fundamental matter. Asparagus shoots are young, soft growth, which generally means quite hearty feeding on nitrogen. This nitrogen is also all taken out in the late winter, or early spring, when little of the nitrogen in the peat is being freed for the use of the plants. That indicates that very probably the application of a small amount of available nitrogen, say in the form of nitrate of soda or lime, would be profitable.

Fair amounts of potash and phosphoric acid is also used by the young shoots, although the fact that they contain so much moisture makes a small amount of real plant food go a long way. In a two-ton crop of asparagus there would be removed about 14 pounds of nitrogen, 4 pounds of phosphoric acid and 10 pounds of potash, not a very heavy drain on the soil.

Eastern practice requires for an acre of asparagus from 600 to 1200 pounds of complete fertilizer per year, containing about 4 pounds per 100 of nitrogen, 3 pounds of phosphoric acid and 10 pounds of potash. That might be all right in sand; it would not be necessary in light California loam, nor on Sacramento river peat.

PLOT SCHEDULE.—On our plot schedule we must show the needs, or sufficiency, of potash, lime, phosphoric acid and nitrate. The barnyard manure will show by comparison with other plots to which potash and phosphates have been added whether organic nitrogen is especially desirable or not.

The blank plot had better be near the center. On plot 1, at the side, the suggested application would be a mixture of 200 pounds superphosphate and 100 pounds sulphate of potash. Provided three or four times this amount could be added it would be very much better, as the cost of the extra food would be moderate, there would be a much more uniform distribution, and there would also be absolutely no waste of plant food, as the potash and phosphate would remain there for years or until used up, and make re-fertilization with these elements unnecessary for a long time.

To plot 2 would be added the same amount of superphosphate and potash, plus half a ton of ground limestone. To No. 3, for the limestone substitute 100 pounds of nitrate of soda, the other ma-



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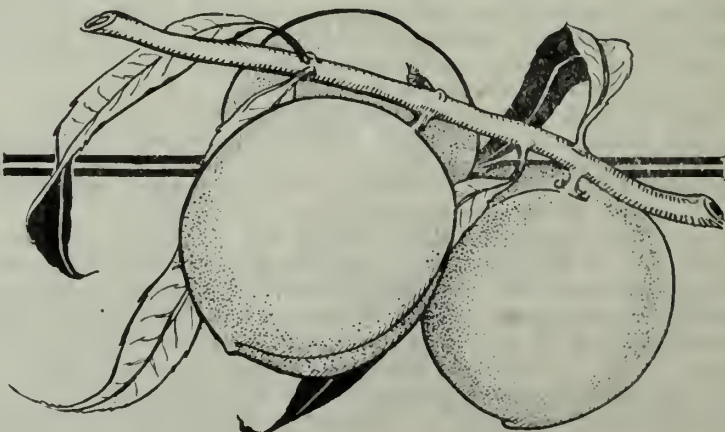
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terials as before. Four is the blank. Plot 5 might have the superphosphate and nitrate, but not the potash, and plot 6, the potash and nitrate without the superphosphate. Plot 7 is the one for the barnyard manure.

The order of these plots can be varied without making any difference, although they should be as near alike as possible and handled in just the same way, aside from fertilization. Long narrow plots are preferred to square plots.

As before stated, if the land is at all sour, it would be advisable to use limestone on all plots but the check. In this case double the nitrate had better be used on plot 2 as on plot 3. For that matter, would also suggest that 200 pounds of nitrate be used all the way along instead of 100 pounds, as it is a great thing to make plants grow, and the following year some trials could be made with 100 pounds as compared with 200 pounds.

INTERPRETATION.—Say that the soil is not acid and that the lime is put on only one plot. How are the results to be interpreted? If the blank plot is as good as the others it means, in the first place, that fertilization for the time being does not bring a profit, or even pay expenses.

If 1 equals 2, it means that lime is unnecessary, although if 2 is appreciably better it means that lime is a fine thing. The observations, by the way, should continue during the summer growth of the asparagus, as the fertilization benefits might not be apparent in the spring crop but come out strong in the summer growth and in the crop of the following spring, which depends directly upon the summer growth.

If the plot with potash and superphosphate but without the nitrate of soda does as well as that with the potash, superphosphate and nitrate, the nitrate is not necessary. If that with the nitrate does better, the nitrate is a good thing to use. The two that lack either potash or superphosphate can be compared with that containing potash, superphosphate and nitrate. If they fall below it, the lacking plant food should be supplied; if they come up to it, fertilization with missing element apparently is unnecessary.

Stable manure contains potash and phosphoric acid in small amounts. An appreciable increase in yield over the blank plot, or over the one with no nitrogen added indicates that some organic nitrogen might well be applied.

The fertilizer had better be applied between the rows immediately after furrowing up and it should be cultivated in right away. Lime, potash and the phosphates can in the future be applied in the fall when the land is smoothed off, but the nitrate will always have to be put on just before the asparagus begins to send up shoots.

POSSIBLE SUBSTITUTIONS.—There are several possible substitutions that might be made in the above. About as promising as one as any is the substitution of kainit for sulphate of potash. Asparagus is a seaside plant and can stand salt, in fact salt was once considered good. Kainit might be just as good or even a little better than the sulphate, especially if the land is not troubled by alkali, and it has the advantage of being a little cheaper.

If there is any alkali present, nitrate of lime would be a very good substitute for nitrate of soda. The nitrate of lime, however, would have little, if any, more effect than that of nitrate of soda in neutralizing soil acidity.

Thomas powder on peat land is very good. On a larger experiment, and if the experiment was carried on another year, both it and the superphosphate might well be tried on alternate plots.

The lime should have a decided benefit in making the peat nitrogen more available. There is a possibility that even if nitrate applications were advisable the first year that they would not be necessary the following year. A hint of this would be seen in the summer growth and the experiment could be completed the following spring.

In closing, it might be stated that often the fertilizer company will furnish mixed fertilizers, especially potash and superphosphate, in the right proportions, as cheap as a man could buy them separately. So mixed they could be applied much more evenly and easily than when put on separately.

Although we here advise very small amounts of most elements, very much heavier applications of potash and superphosphate would be better, as in the long run a heavier application is cheaper and more effective. The cost of such experiments is very small in comparison with probable results. Fertilization means the assurance of permanent fertility as compared with sure decrease of yield, and by fertilizing one is sure that he is providing for the future as well as for the present.

Asparagus is a crop where results ought to show. The results will be awaited with much interest.

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Food Distribution Properly a Public Function.

To the Editor: One of the favorite pastimes of journalists and economists is to talk and write about the high cost of living, middlemen's profits, the great difference between what the producer gets and the consumer gives for the necessities of life, etc.

Remedies are suggested, most of them impractical or not radical enough. There has been considerable recent agitation in regard to allowing market gardeners to

peddle their own stuff without a license in Los Angeles.

The trouble with all these suggestions is that there is no intelligent intimation of how to get rid of the middleman, the retailer. We have illustrious examples in California of successful efforts to do away with middlemen in the various fruit associations and exchanges through which members of said associations market their fruit and purchase many of their supplies without contributing to the support of a useless army of parasitic middlemen.

There are many examples of co-operative Grange stores in the East where the members are enabled to purchase their groceries, etc., at practically wholesale cost.

Why not get radical and go to the root of the matter and let the public supply themselves with the necessities of life through public stores established and supported by themselves by taxation?

It is just as sensible for the people to establish and provide means to supply themselves with provisions, without paying a useless tax to middlemen, as it is for them to establish public schools for general education instead of supporting a lot of private schools or to build public roads instead of having private toll roads.

With such stores supplying goods at actual cost with the necessary clerks and managers on a fixed salary, paid by public taxation, with no losses by way of bad bills, by getting goods in large quantities, etc., it is safe to say that the table expenses of the average consumer would be lessened at least 40 per cent.

Carrying the idea further and having county and State supply houses, not only would the small retailer be done away with, but also the wholesaler, to quite an extent, would be superfluous. Manufacturers and producers would find better markets for their products, the marketing expenses would be cut to a minimum all along the line, and we the people would be the sole beneficiaries of the system. No one pretends that the average small retailer is getting rich on making more profit than is necessary to the support of himself and family. The only trouble with him is that he is superfluous. He is just a parasite, feeding off the public without giving any adequate return.

In the average small town many consumers are driven to sending out of town for the bulk of their groceries because the small retailers have an understanding in regard to the maintenance of prices on staples. For instance in this town, retailers fix the price of cane granulated sugar at \$6.75 per hundred. Anyone can send to Los Angeles and land the same quality sugar at this station, freight paid, for \$5.85. Flour and other staples are in proportion. The people should not be driven to sending away for their goods, neither should they be held up. They should have the means to provide themselves with these things at the lowest possible cost.

The writer does not make any pretension of having perfected any plans along these lines. If there is a sound kernel in the foregoing, give it for what it is worth and it may induce some brighter mind to work out practical details and cause further agitation.

DANA L. TEAGUE.

Santa Paula

[We have not the faintest idea that such an arrangement can ever be effected, but the propositions may commend themselves more strongly to some readers than to us.—EDITOR.]

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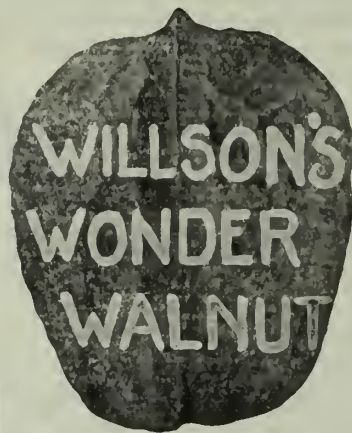
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FRESNO, California

BETTER PEACHES, BETTER PRICES.

(Continued From Page 129.)

obtained by the blasting. The trees taper from the top of the ground, have big, stiff limbs and look real healthy. They are looking so well that the adjoining 80 acres will be put out in a similar manner. Mr. and Mrs. Harris and Mr. Edmondson recently took a trip through some of the best orchard districts of the valley and did not see a young peach orchard as thrifty as this.

"A concrete tile irrigating system will be installed later on. It appears probable that this orchard will be the finest orchard in Madera county and possibly in surrounding counties."

With good soil like that on the ranch, a climate like that of the San Joaquin valley, the soil filled with nitrogen and vegetable matter by the growth of alfalfa, the deep plowing and subsoiling, the blasting and irrigating, any tree should grow vigorously. If every orchard planted had similar treatment, California fruits would be much superior and produce more heavily than they do now.

There are other things than growing large quantities of good fruit to be considered in making a commercial success and in putting the industry in proper condition, but fine fruit and lots of it is a basic factor for profit. Having a start like the young orchard, caring properly for the bearing trees, and using good judgment and honesty in selling, success will be attained.

THE RAISIN COMPANY.

To the Editor: I am a newcomer to the State. I have six acres of fine Muscats, securing 4800 pounds of good raisins from them this season. I should like some information regarding the "Million-Dollar Corporation," how to pro-

cure stock, requirements, etc.—J. B. D., Escondido.

This subject is gone into in considerable detail in our issue of January 4, 1913. Stock is \$100 per share, and about \$500,000 has already been subscribed—perhaps more by this time—of a total capitalization of \$1,000,000. You can send in a check to the California Associated Raisin Company, Fresno, for as much stock as you want. A person does not have to be a raising-grower to subscribe, though there is a limit, for the time being, to the amount that others than growers can subscribe.

The company is contracting for as big an acreage of raisins as can be secured for three years. They will send you a blank contract which will explain their proposition. A person does not have to be a member to contract his raisins, nor do members have an advantage over non-members except in participation in dividends and the satisfaction of knowing that they are aiding the raisin industry. The directorate has been chosen and is at work. It is composed of an exceptionally capable set of men and should keep the company on the right track. There are no hard and fast rules as to how the company should be conducted, as the directors are as foot-loose as directors of any other company, being subject only to the stockholders. D. J. W.

The federal board of fruit and drug inspection has issued an order forbidding the sale in interstate commerce of fruits which have been damaged by frost. The board defines frozen fruit as that upon which transverse section through the center shows a marked drying in 20% or more of the exposed pulp. Shipments of fruit will not be considered frozen unless 15% or more of the fruit shows such frost injury. Frosted fruit sold in several California markets may have to be labeled "Injured by Frost."

Consider Now

what it will cost and how much money you will save on your next season's fertilizer bill if you should buy your

Nitrate of Soda

and other Farm Chemicals and mix them yourself.

Your own brand MIXED AT HOME will be better than any patent brand and is sure to have in it just what you want.

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FANCHER CREEK NURSERIES, Fresno, Cal.
GEO. C. ROEDING, Pres. and Mgr.

California Cured Fruit Exchange.

[By OUR ASSOCIATE EDITOR.]

The California Cured Fruit Exchange is organized to get at the most important matter confronting the deciduous fruit-grower today, the thing that underlies all kinds of farming, the marketing problem, the problem of receiving decent returns for the products of the farm. It is a growers' organization having the producers' interests paramount, if not solely in view, but in furthering the interests of the producer it also aims to put the market for cured fruits on a good footing, to put out a better product, to please the consumer, and to eliminate all unnecessary middlemen's profit. By help-

porate the California Cured Fruit Exchange. Four other Associations have since been organized and others are being formed, with a total membership already of more than 360 producers. The members insisted that Mr. Dargitz resign from the Almond Growers' Exchange to take up the management of this

Since incorporation detailed arrangements have been made for the marketing of the dried fruit owned by the members. The best brokers all over the country wanted to represent the Exchange and there was no difficulty in getting the right men. There are now dried fruit brokers connected with the Exchange in 40 centers



J. P. Dargitz, Manager California Cured Fruit Exchange.

ing the producer it helps the consumer and forwards the public welfare.

Having thus the highest and best aims, the two points left are the methods of operation and the men in charge of the work. Those who recognize on this page the face of J. P. Dargitz, the manager, formerly the manager of the California Almond Growers' Exchange, will know that the organization is in good hands. The methods of operation will, in being described below, speak for themselves.

The whole proposition parallels the California Fruit Growers' Exchange and the Associations that make up that Exchange as closely in fundamental principles as the different products marketed permit. It is also like the Almond Growers' Association, which has had great success, and like other cooperative concerns. Both the Exchange and the Associations that go to make it up are solely cooperative, there is no capital stock issued, no dividends will be paid, the fruit itself pays all expenses, and everything over expenses goes to the grower of the fruit.

BEGINNINGS.—The formal beginning of organization was at a meeting of producers of cured fruit, called early in October by J. W. Jeffrey, secretary of the Deciduous Protective League, now also secretary of the Exchange. Fruit men from ten counties were at this meeting, and the decision to organize according to the present system was made. By November 25 six associations were in existence and representatives of these joined to incor-

porate the California Cured Fruit Exchange. Four other Associations have since been organized and others are being formed, with a total membership already of more than 360 producers. The members insisted that Mr. Dargitz resign from the Almond Growers' Exchange to take up the management of this

ASSOCIATION MANAGEMENT.—Associations are all organized and run on the same principle, though there may be some difference in non-essential detail. Only fruit growers may become members. New members are taken in only on vote of directors on payment of a nominal initiation fee, which in the case of the charter members went partly to pay the expenses of incorporation. The other expenses, both of Association and Exchange, are charged against the fruit sold. It is the business of the Association to prepare the fruit for the market, of the Exchange to sell it.

The fruit has to be packed and prepared for sale, so packing houses are needed. All Associations will ultimately own their own packing houses without doubt. One is now leasing a house for the 1912 pack, another is hiring the fruit packed, the charge going against the fruit.

In the citrus Associations it is usual for money to be borrowed to purchase or build a packing house on the note of the directors or members, and these notes paid off little by little by such small charges against the fruit that the members pay for their packing house while netting

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more for their fruit than they would if selling it in the old way. This will evidently be the way the packing houses of these associations are obtained.

The fruit of each member is carefully graded and sold through the Exchange, each member receiving his returns according to the way that his fruit grades out. Each member is required to market his fruit through the Association, except for such small amounts as he might want to ship to a friend, etc. Each Association has its own brands and does its own grading. This allows it to get full value for more careful growing, packing and grading than other associations and vice versa.

EXCHANGE.—The Exchange gets its funds for operating from a charge of $\frac{1}{4}$ cent a pound against the fruit of the various Associations. This is the greatest amount that will be needed. After the accounts for the year are closed, whatever remains of that $\frac{1}{4}$ cent is returned to the Associations in proportion to the amount of fruit handled and by the Association returned to the individual members on the same basis.

The price asked for the fruit is determined by the directors. This is not, however, a hard and fast price, as the manager is authorized to use his own discretion in such minor variations in price as may be best according to the orders he is receiving, the way the market is going, and so on. There is no attempt to be made to fix a high price and getting it by cornering the market. The main idea is to sell the fruit and the advantages from handling one's own fruit and avoiding all the evils that come from the present system will be more than enough to reward the members for the time being, to say nothing of the ultimate benefits from having a stable instead of a speculative market, and all the other benefits which every grower appreciates.

The Exchange is composed solely of representatives of the different Associations. Each Association elects a single representative and these in turn elect directors. Other growers of dried fruit throughout the State may organize according to the plans pursued by the present associations and by the mere fact of organizing be eligible to membership. There must naturally be nothing in the constitution of these later organized Associations contrary to the interests of the other Associations.

In all matters connected with the business of the Exchange, each Association has a voice proportionate to the fruit handled. There is one vote by virtue of belonging to the Exchange. Another vote is given for each ten tons of dried fruit sold more than the first ten tons. In other words, one association producing 100 tons of dried fruit would be entitled to 10 votes and another with 1000 tons would have 100 votes. A newly formed Association with but 10 tons would have but a single vote. An Association may also withdraw from the Exchange if it so desires, subject to certain restrictions that protect the other Associations.

EXCHANGE DUTIES.—As a part of the sales methods there are certain important duties for the Exchange. One of the most important things is the establishment of uniform grades. One of the most injurious features of the present system, as far as the producer and buyer of the packed fruit are concerned, is that there are no uniform and stable grades to the fruit. Each year makes its own grades, to a certain extent at least, and the buyer is never quite sure what he is going to get until he sees a sample. This is partly due to the speculative features of the market.

Many of the sales for a crop are made in the spring, and it often happens that in the desire to make a sale the dealer sells fancy peaches, apricots or some other

fruit at a price at which it turns out he would lose money. He would sooner lose the customer, perhaps, than the money, and sends choice instead of fancy, claiming that it is the agreed grade. The customer may refuse to accept it, in which case the deal is off and a broker will sell it to another customer as the choice grade which it is, or the customer will take it and be careful that he does not buy any more fruit in advance than he has to.

That limits the market to a great extent and is bad for the producer. It does not hurt the dealer a whole lot, for he is not a producer, and if he loses a customer he simply buys so much less fruit, or if the price suffers he just pays the grower so much less and is about as well off as before. The growers' concern, however, has its own fruit to sell, it has in mind the market of years to come as well as the one season and plays fair accordingly.

Owing to the different quality of fruit on account of season and location, there will always be some difference between the best fruit of one Association and the best of another, but there will always be the same standard of grading followed in every Association, so the customer who knows a brand one year will know what to expect another.

OTHER DUTIES.—Securing of supplies of labor and material will be another duty, which in the various growers' organizations in the State has been of considerable help to the growers. Likewise, as has been done in the Almond Growers' Exchange, the best methods of culture and handling of the fruit so as to make the best kind of a product will be an important object, and various kinds of information, culturally and otherwise, especially on market prospects, will be sent out every month to each member. Further details, including a copy of articles of incorporation and by-laws of the Exchange and a sample of articles of incorporation and by-laws for an Association can be secured by addressing the Association at Sacramento.

But little more be said. The Exchange is founded on the right principles, principles which lie at the basis of all of our successful cooperative organizations in California. The Exchange is under the management of a man who in three years made the Almond Growers' Exchange as successful, strong and progressive a concern as can be found anywhere.

There is no grower in California who does not know how thoroughly unsatisfactory the present system is. Speculation lies at the bottom of all present methods of selling dried fruit, with the grower getting the weight of the whole thing on his shoulders and the consumer paying fancy prices for the little fruit he does use. The raisin market has been demoralized for years, peaches this year sold all along at prices which have nearly killed the sale of free-stone peach trees this winter, and although the prune men have been getting along, every year it is a fight for decent prices, with the packers wondering if perchance something will not demoralize the market and let them cover short sales at profitable figures, or get prunes for a little less than what the market happens to be. The grower, whose business is not selling, but producing, is left to bargain as best he can with big concerns with the best kind of information to help them, with bargaining their main occupation. Combined, the growers as producers can carry all before them.

A grower's concern has many big advantages. It sells only fruit which it has on hand. There is no expense in buying fruit to pack, no fighting for lower prices to get that fruit, no speculation, no money tied up, a responsibility toward the consumer that the dealer does not have, a favorable reception from the jobber, an incentive to look after the progress of the fruit until it reaches the ultimate con-

sumer's hands, an incentive toward producing better grades and a big saving in handling. Cooperation is the greatest thing

before the producer today, it is the thing that in agricultural lines is making the most progress.

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MOST PERFECT POWER OUTFIT IN THE WORLD

The Bean Giant will do more work at less cost and with less trouble than any other power sprayer on the market, without exception. It is the very acme of efficiency.

The engine and pump are direct connected, which makes slipping impossible. The Bean Pressure regulator is safe, sure and dependable. It saves from $\frac{1}{4}$ to $\frac{1}{2}$ the gasoline and the same proportion of wear and tear on engine and pump.

The bell metal ball valves cannot corrode, clog or stick. The porcelain-lined cylinder never wears out. The underneath suction avoids priming, increases capacity, and saves replacing cracked hose. The steel frame affords perfect rigidity and is much more durable than the old style wood frame.

There is an iron well in the tank which makes the tank easy to clean and drain. The patented cut-off and air suction in the tank makes it unnecessary to put out the suction hose. Every detail of the Bean Giant has been worked out to its greatest perfection. You ought to know more about it.

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It illustrates and describes the Bean Giant and the entire Bean line of hand and power sprayers and pump accessories. Don't invest in an outfit till you send for the book. State number and kind of trees when you write.

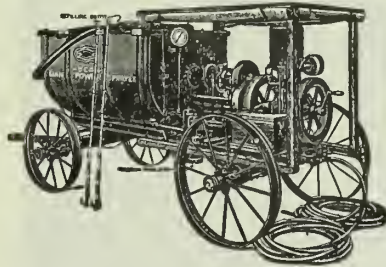
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Haas, Baruch & Company

LOS ANGELES, CAL.

DEEP WELLS ON THE WEST SIDE.

(Continued From Page 135.)

It is an interesting fact that the deeper the water-bearing strata, the more water therein, or at least the higher the water rises in the well. One of the wells was at the upper end of the property, the other near the lower side, and the former is the shallower, 660 feet deep. There were half a dozen beds of gravel that carried water, of varying thickness, struck in boring this well. The water rose in the well to about 40 feet on striking the

be secured, running into the hundreds of thousands of acres. A big proportion of this is in the hands of Miller & Lux, which would prevent subdivision, but there is enough left for development for a long time without this.

The soil itself is excellent. It is of a different source and type from that on the east side of the valley, coming from the Coast Range instead of the Sierras and being more of loam or clay types than the soil on the east, which is largely sand or of a sandy type. Its fertility when water is supplied is demonstrated in districts on the west side where alfalfa is grown by irrigation, and dairying. The



Building Reservoir on Oro Loma Farms, Fresno County.

next to the last one, but on striking the deeper strata it rose to about 28½ feet, giving, when pumped, at the rate of 1200 to 1500 gallons of water per minute.

The small farmer naturally could not afford to sink a deep well like that, neither would he have use for more than a small fraction of the water. The proposition on the tract where water has been struck is to have each well serve about a section of land, to have a small irrigation company and irrigating district.

POSSIBILITIES.—It will require further investigation to know just how much land is underlaid by such gravel, but the possibilities look promising. Except for the land under irrigation from San Joaquin river water, there is not a great amount of irrigating done, though there is some water secured from other sources.

The land without irrigation is producing but little. The rainfall is rather scant and the land is used either for grain farming or for pasture, mostly the latter. There is a vast amount of this land that would produce abundantly if water could

land usually has an excellent grade, about 12 or 13 feet to the mile.

The nature of the soil is well stated in an extract from the U. S. Geological Survey Water-Supply Paper No. 222: "The west side streams, draining mountains practically free from granites and similar rocks, but with soft serpentines, shales and sandstones, deposit fragments of those rocks in their alluvial fans, and the result is a soil type entirely different from that of the east side and south end of the valley. These shale, clay, serpentine and sandstone fragments disintegrate much more quickly than the granitic sands that contain large proportions of such resistant minerals as quartz and feldspar, and the result is a mellow, loamy soil with its fragments of siliceous shale that makes much of the west slope of the valley and is so productive whenever water is applied to it."

Water is the great thing for California, and every addition to irrigating supplies is an addition to the wealth of the State.

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F. W. SETTLEMIER, Proprietor.

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PASADENA, CAL. R. F. D.

Free Illustrated Price List.

BRITISH FRUIT PRICES.

We object to the middlemen's profit here in the United States, and, like good patriots, usually blame the Government for it, more or less at least. We have just received a personal letter from England which will show that America has company in her affliction.

The writer states: "I had asked a retail fruit-store man here which fruits he sold most of, and he said bananas and pears. He retails Black's Californian pears (Winter Nelis) at 16 cents a pound. Of course, they have to come through a number of hands before reaching him. I bought from him some California navels this week (Dec. 22, 1912), the first this winter on sale, at five cents apiece. They were packed by the Central California Citrus Exchange, 'Sunkist' brand. Last winter I noticed his navels were from San Dimas. They retail here, Hood and Rogue river and British Columbia apples, at about 12 cents a pound. Virginia Newtown Pippins (Albermarles) are dearer. They, like apples from Canada and the Eastern States, come in barrels. [And some California Newtowns netted only 12 cents a box in London!—ED.]

"Oranges range from 12 cents a dozen for Spanish seedlings upwards to California navels at 60 cents retail. They also come from Palestine (Jaffa), Jamaica, etc."

ENGLISH STILL OBJECTING TO EMPLOYERS' LIABILITY.

At a largely attended meeting of farmers and stockbreeders, held at the Agricultural Hall, Islington, last week, says the London Farm and Home, Mr. E. Robson (Berkshire Farmers' League) presiding, the following resolution was carried unanimously:

"That this meeting of farmers protests against the compulsory character of the Insurance Act, and demands its amendment upon such lines as shall secure a just and fair rate of taxation for employers and employed in this great industry, and give back to the laborer the right to receive his wages in full and make his payments to his own society."

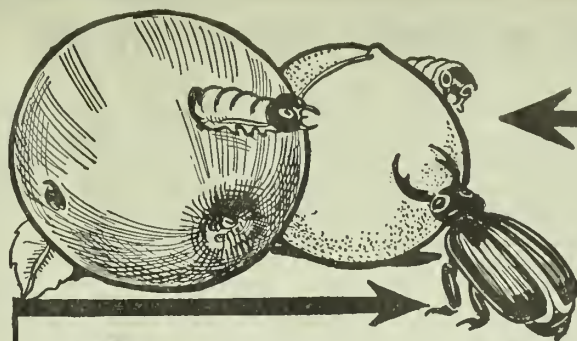
Mr. G. Baylis (Newbury), who moved the resolution, said that statistics gathered in the Eastern Counties showed that the tax represented a shilling an acre upon cultivated land. In Great Britain and Ireland there were 32,600,000 acres of cultivated land, and at a shilling per acre the Insurance Act represented an annual tax of £1,600,000 upon agriculture—a tax upon their wheat, barley and oats.

MAPLE SUGAR.

California grows maples from which sugar can be produced, but not much use is made of them. A farmers' bulletin on the production of maple syrup and sugar, just issued by the U. S. Department of Agriculture, says:

"The Oregon maple is the only Western species which can be considered as a producer of sugar. In localities where the season is favorable, the sap is of good quality and the flow considerable. The tree is found west of the Cascades and Sierra Nevada, from the Canadian border to southern California. It prefers rich moist soil, and reaches its best development in the river bottoms of Washington and Oregon. The census of 1910 reports a very small production (10 gallons of syrup), from Columbia county, Washington."

Now that we have had a touch of good old-fashioned Eastern winter, it might be a good time to see how the sap would flow and if we could beat out Washington.



When You Go Murdering

the vermin that's eating the life out of your trees see that you use a spray which will kill the egg as well as the insect. If you do you'll have clean fruit. Use

Universal Orchard Sprays

They are quick and sure. They penetrate the bud clusters and kill the eggs. We have spent a good deal of time and money in experimenting with all kinds of sprays and in the Universal brand we have a sure cure for sick and ailing trees.

Our book on spraying sent free of charge. Write for it.

Insecticide Dept.

Balfour, Guthrie
& Co.



PAUL R. JONES
Entomologist

350 California Street
San Francisco, Cal.

Hanford Nurseries

CLARKSTON, WASH.

TREES

That will Grow.
That are True to Label.
That are Free From Disease.

By arrangement with the Vineland Nurseries Company, we offer a limited number of

Red Gravenstein

Apple Trees for Fall Delivery.

See what Prof. E. H. Van Deman says of this wonderful new apple:

"For two years past I have seen the Red Gravenstein Apple at some of the fruit fairs in the West, and among them the National Apple Show at Spokane. I have also eaten it, and it is a true Gravenstein in every particular except color. In this respect it far surpasses the old variety, because it is almost solid red and exceedingly attractive. I think this difference will cause it to sell even better than the common Gravenstein, from which it is a bud-sport."

Hanford Nurseries

CLARKSTON, WASH.

Drawer 6. AGENTS WANTED.

WALNUTS

GRAFTED FRANQUETTE WALNUTS

If you want the best of anything, go to one who specializes in that thing. After nine years' improvement, we are offering the best that can be produced in the walnut line, using grafts from the heaviest bearing trees of the Vrooman Strain and grafting on the sturdiest and most rapid-growing yearling Royal roots. If interested in walnuts, send eight cents in stamps for price list and catalogue.

IMPERIAL WALNUT NURSERY,
R. F. D. No. 7. San Jose, Cal.

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AIR SLACKED

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Complete line of hand and power sprayers and accessories.

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IMPERIAL PRUNES on Myrobalan.
BURBANK'S "STANDARD" PRUNE.
BARTLETT PEARS, APPLES, CHERRIES, ALMONDS, PEACHES.
GRAFTED FRENCH WALNUTS.
10,000 Loganberry Tips.

A complete line of other Fruit Trees, Ornamentals, Small Fruit Plants, Palms, Roses.

CALIFORNIA BLACK WALNUT SEED.

TREES

A general line of Oranges, Lemons, Deciduous Nursery Stock, Roses, Shrubs, etc.

A. R. MARSHALL'S NURSERIES
Corner 3rd and Bush Sts., Santa Ana, Cal.

Report of State Veterinarian

In business incident to the meeting of the legislature there is much of interest to the farmer and stockman, as among other things all departments of the State government are issuing the biennial reports. The report of the State Veterinarian, recently issued, is especially important at this time in view of contemplated legislation for the control of glanders in horses and tuberculosis in cattle and hogs. Both of these diseases have been given special attention by the State Veterinarian during the past two years.

GLANDERS.—During the past two fiscal years 635 reports of glanders infection were investigated and 1,252 head of horses and mules were destroyed. This is a total of 450 more animals than were destroyed during the previous two fiscal years. The increase is not due to the disease being more prevalent, but solely because great progress toward eradication has been made and many sources of infection previously hidden were discovered.

When diseased animals were discovered their ownership was traced as well as possible until the source of infection was discovered. In this manner it was possible in a number of instances to run on to a trail of infection among other animals that was left behind in the change of ownership and location of the chronically affected animal.

ANIMALS EXAMINED.—During these two years there were 612 horses and mules showing symptoms of the disease upon clinical examination, which made testing unnecessary and these were destroyed.

Likewise the other horses and mules subject to infection from these to the number of 3,647 were tested with the various biological tests. The majority of these tests were with mallein, which proved more satisfactory than the so-called precipitation test, which it was once thought would make the mallein test unnecessary. The mallein test is not as accurate as it might be, and is rather arduous, so that a third test, known as the complement-fixation test, was tried and seems to be the best of the three. Possibly facilities for using it entirely may be provided at the coming legislature.

Of the animals tested 2,321 did not react and were passed as free, 640 reacted and destroyed, and 143 reacted, but were not destroyed. There were 43 with indefinite reaction which were held for a retest.

RECOMMENDATIONS.—Dr. Keane recommends changes in the law which will greatly facilitate the work of his office. At the present time if an animal reacts to a test the law says it shall be killed. However, if the owner says it shall not be, the courts often say so too, and this permits the animals, if they have glanders, to act as possible spreaders of the disease.

Dr. Keane would have the matter remedied in both directions. In the first place, the State Veterinarian should be allowed to examine all horses by clinical examination.

The horses and mules having been subject to infection from glandered animals then should be tested with mallein or other test of recognized merit, and instead of reactors being destroyed, as the law now directs, they could be kept and worked, but under such restrictions as to be no source of infection to well animals. On the development of the disease the animals would be killed.

Branding of reactors is recommended and a hint dropped that the destruction of reactors might be brought about at once if the State would pay two-thirds the value of the animals.

The State Veterinarian considers that glanders could be eradicated much easier than the Texas fever and scabies, which are practically eradicated through most of the State. However much one may differ upon some details in proposed legislation, no one can deny that it would be an excellent thing for everybody and a vast saving if this disease were eliminated, and this proposed legislation appears in general lines to be very fair to horse owner and to aid in eradication.

TUBERCULOSIS.—Free testing for tuberculosis was done by the State Veterinarian on 157 herds of dairy cattle. The agreement by owner for such a test has already been given in these columns and need not be referred to again.

In these herds were 20 head of cattle giving indications of tuberculosis which were slaughtered without testing. Of 3,142 tested, 2,452 were found free from the disease, or at least did not react, and 598 reacted and condemned, though were not necessarily destroyed. There were 97 held for retest. These, if the writer sizes it up properly, would have only the faintest traces of the disease at the most, unless possibly they were rotten with it,

SHROPSHIRE

Pure Bred and Registered

For 1912:

140 Head Yearling Rams
150 Head Ram Lambs

Enterprise Stock Farm

H. P. EAKLE, Jr. Woodland, Cal.

BERKSHIRES

Our herd is now one of the best in the State, being rich in Silvertip, Black Robinhood, Longfellow, Empress and Masterpiece Strains.

Prices reasonable, satisfaction sure. Correspondence solicited from interested parties.

OAK GROVE DAIRY FARM,
Woodland, Cal.

Cutter's Anthrax and Blackleg Vaccines

are given the preference by 80 per cent of California stockmen because they give better results than others do.

Write for Prices, Testimonials and our New Booklet on Anthrax and Blackleg.

THE CUTTER LABORATORY
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Saddle Horses
Combination Horses
Matched Teams

Our own Breeding and Training.

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HOLSTEIN BULLS

3 past Yearlings from Tested Dams.

HEENAN & WELDON
Sacramento, Cal.

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THE LARGEST HORSE IMPORTERS ON THE PACIFIC COAST



PERCHERON, BELGIAN, ENGLISH SHIRE, CLYDESDALE, HACKNEYS AND COACH STALLIONS AND MARES.

We sell more imported horses than all other firms on the Coast because we are direct importers and give a four-year guarantee which is good right at home. We have on hand at all times the largest and best lot of heavy draft stallions and mares, both American bred and imported, to be found any place in the West. If you are in the market for a high-class stallion or mare, don't fail to give us a call, as we can sell you more genuine horse for the money than any other importer in the business.

Address: RUBY & BOWERS, Davis, Cal.

Ruby & Bowers Have Imported More Horses Than Any Other Firm in the United States.

FOR SALE:

100 Short-Horn Bulls

sired by grandsons of King Edward, Hillcrest Hero, Choice Goods and other prize-winning Bulls.

ALSO

300 Blacow Robert Glide French Merino Rams

Single or carload lots. For further particulars write

THORNTON S. GLIDE, Davis, Cal.



King Lancaster, Grand Champion Bull, California State Fair, 1909-1910-1911.

The only Bull three times Grand Champion at the Fair.

Fifth Annual Sale of High Class Hereford Cattle

KENTLAND, INDIANA, FEBRUARY 26, 1913.

25 Bulls. Rare Breeding and Quality.

50 Cows and Heifers. Show Yard Quality.

Now is the time to begin to prepare for the great Panama Exposition.

20 of the bulls are Sons or Grandsons of the Great Perfection Fairfax.

All cows of breeding age bred to my celebrated Herd Bulls. Send for catalogue. Mention this paper. If you can't come, send your orders to Sec'y, R. J. Kinzer, John Letham, or the undersigned, and you can rest assured you will receive a square deal. I would indeed be pleased to hear from anyone interested.

WARREN T. McCRAE, Prop. Orchard Lake Stock Farm.

JAMES HENDRY, Mgr.

THE IMPERIAL LAND GRADER



The only grader and scraper combined that moves earth and levels the ground perfectly and with ease.

GASOLINE ENGINES. CENTRIFUGAL PUMPS.
TRACTION ENGINES. ELECTRIC MOTORS.

ALL KINDS OF MACHINERY
REPAIRS ON SHORT NOTICE.

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FROM THE GOLDEN GATE

THROUGH A GOLDEN STATE

BY THE GOLDEN FEATHER RIVER ROUTE

VIA THE

Western Pacific

100 MILES OF GRANDEUR

For full particulars apply to
any Western Pacific Agent or

TICKET OFFICES:

665 MARKET STREET, Palace Hotel, Phone Sutter 1651
MARKET STREET FERRY DEPOT, Phone Kearney 4960
1226 BROADWAY, OAKLAND, Phone Oakland 122.

and if they had traces would probably react the next time.

PERCENTAGE AFFECTED.—In several counties every animal tested was free, the disease was absent in herds examined. These were Monterey, 25 cows, Tehama 18, Tulare 154, San Bernardino 66, and Yolo 9. How many herds were represented in the above is not stated. Most of these, it can be seen, are interior counties, where our greatest dairying sections are mainly located. It is likewise true that one or two interior counties gave high percentages of reactors and as a matter of fact there are few conclusions from the 21 counties named that one could draw regarding the relation of tuberculosis to location.

It can be noted, however, that about 18.7 per cent of cows tested, reacted and including the 20 giving an appearance of the disease there would be only a little more than 19 per cent affected.

Little is said on tuberculosis legislation in the report, although a bill is being prepared by the State Veterinarian on the subject. This will be given out later and discussed in these columns.

SCABIES AND TEXAS FEVER.—Very remarkable progress has been made in the eradication of these two diseases in California owing to the cooperation of State Veterinarian, the U. S. Bureau of Animal Industry and the stockmen of the State.

Since the fight on Texas fever started a few years ago, more territory has been removed from Federal quarantine than in all other States put together. It occurred from Merced county south. Now it is found only in San Diego county, a little corner of Orange county, and the western half of San Luis Obispo, and Dr. Keane states that the quarantine will probably be lifted in these next year, that the State will be absolutely free. During the past two years the tick has been eradicated from Santa Barbara and from

most of Orange county, and the quarantine lifted.

Scabies can hardly be found, although several years ago it was in 80 per cent of the flocks of the State. The nature of the trouble makes the final steps of eradication hard to complete although the disease does practically no injury to the flocks now.

Rabies has been spreading, there being 299 cases of the disease coming to the attention of the veterinarian during the two years. This is only a part of the cases, as the State Veterinarian is not in charge of the work.

There were 55 outbreaks of anthrax. Hog cholera was investigated by the office in 22 counties. A number of outbreaks of cerebro-spinal meningitis were investigated, the disease always being overcome when good clean fodder only was provided the animals.

CALIFORNIA A FACTOR IN NATIONAL DAIRYING.

In his recent address at the Washington Dairymen's Convention, President McInnes said:

"We dairymen of Washington are beginning to face new conditions. California, owing to her extremely mild climate, favorable to the rapid growth of alfalfa—the acreage of which she is rapidly increasing—is enabled to produce butter at a very low cost, and during the last 10 years has more than doubled her output. This competition would have been felt far more acutely save for the fact that during the last two years high prices for dairy products have prevailed in the East and much of the surplus has been diverted there. We can reasonably expect to see this competition become greater and greater and must be prepared to meet it, or be eliminated—for the law of unhampered trade is inexor-

able. We have the best of the situation during the summer months, to dispense to a large extent with expensive grain rations, thus materially lessening the cost of production. This competition, I believe, can be successfully met in two ways, viz.: by increasing the producing capabilities of our herds by growing better cows, and by growing roots and oats and vetch for silage."

FATAL SKIN DISEASE.

To the Editor: About two months ago a horse was turned out in pasture. Several of the horses in the pasture started to lose their hair. It seemed to fall away from the hide, and leave the skin exposed. The horse that was newly turned to pasture got the same disease and died. The other horses did not die. The hair on the horse that died had fallen off from the sides and hind legs. Will you kindly inform me if possible through the PACIFIC RURAL PRESS the sickness from which the horse died, and if there is a cure?—B. E. C., San Francisco.

ANSWER BY DR. E. J. CREELEY.

This is gangrenous dermatitis, a gangrenous inflammation of the skin. It is due to mould, must or vegetable fungi. Remove to a new pasture, give food free from the fungi, and apply the following ointment to the skin:

Lanoline 8 oz.
Zinc Oxide 1 oz.
Pearson's Creoline ½ oz.
Tannin 3 drachms.

Mix and apply once daily.

San Francisco Veterinary College.

GREAT JERSEY BLOOD COMING TO CALIFORNIA.

Dr. L. J. Belknap of San Jose was the highest bidder on Teddy R. of Bleak House, a young bull of great ancestry.

Teddy's dam, Angelia of Bleak House, 233250, the Tripple Crown Winner, of 1911, won the highest honors it is possible for a cow to win, the Grand Champion Gold Medal for a year's production over 500 cows competing from 130 herds in the United States and Canada. She is a very large and beautiful cow. The sire, Mr. Polo of Bleak House, is a heavy weight, 2,000 lbs., and one of the best of the Jersey breed. Teddy is a double grandson of Channel King, the greatest of all sires, thus possessing the same blood of Channel King as a sire.

HORSE WITH WORMS.

To the Editor: What is the best remedy for a horse that has worms? I would like to know, as I have a horse that is getting poor with this trouble.—J. B., Salinas.

Mix ½ lb. pulverized and dried iron sulphate, and ½ lb. bicarbonate of soda, and give one teaspoonful each morning until the medicine is gone.

After the last dose give the following: Turpentine, 2 oz.; fluid extract male fern, ½ oz.; Pearson's Creolins, 1 oz.; raw linseed oil, 1 pt. Mix and give all at one dose.

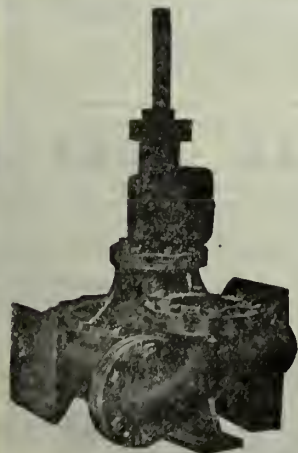
To improve the general condition one may give artificial Carlsbad salts, 1 tablespoonful in each feed, and each dose to have added to it 3 to 5 grains arsenious acid. If plenty rock salt is allowed for horses to lick, they will be protected against intestinal parasites to a slight but useful degree.—D. J. W.

HOWARD CATTLE CO.

BREEDERS AND IMPORTERS
SHROPSHIRE SHEEP
SHORTHORN CATTLE
BERKSHIRE HOGS
641 MISSION STREET, SAN FRANCISCO

ANNUAL SALE OF SHORT-HORNS WHITE & SMITH ST. CLOUD, MINNESOTA AT CHICAGO, FEBRUARY 12th, 1913

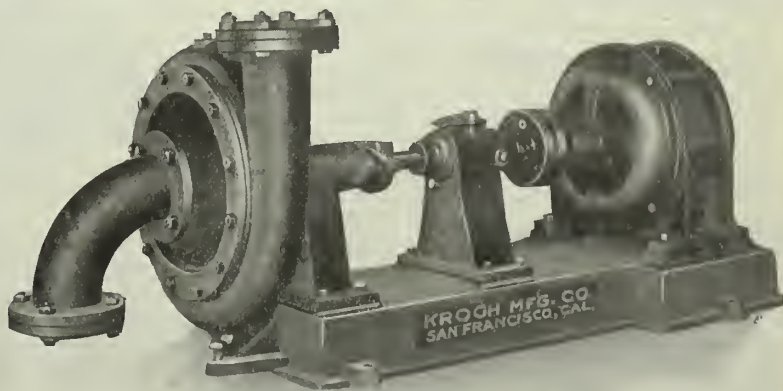
This is one of the very best lot of Scotch cattle that has been sold in recent years. The chief attraction will be "ROAN QUEEN", grand champion female at the last International. She will be right up to the calving to the service of "Ring Master". Grand young cows in calf and with calves at foot by "Ring Master" are in the sale. A great array of "Ring Master" yearling heifers will be another of the special attractions. The great herd bull "Superbus" with some of his get and along with four "Ring Master" bull calves will make up the bull offering. Forty-two females and nine bulls will make up the sale, the whole lot of the most fashionable and best of Scotch breeding. This is a rare opportunity for the Short-horn men of the West. Any of our breeders who are in need of such cattle and cannot attend the sale should either wire or write W. M. CARRUTHERS, c/o Sherman House, Chicago, who will carefully take care of such bids, or Geo. P. Bellows, Marysville, Mo. Catalogues will be on hand at the office of the Pacific Rural Press.



Krogh New Vertical Water Balanced Pump

CAREFUL IRRIGATIONISTS ARE INVESTIGATING OUR NEW WATER BALANCED PUMP—THEN BUYING IT.

Experience has taught them that a successful pump must be not only efficient but must also be capable of withstanding, to a reasonable degree, the cutting action of sand. Our pumps excel on this point. Bulletin No. R10 tells all about them.



Krogh Electric Pump

Our branch house, 206 N. Los Angeles Street, Los Angeles, carries a complete stock.

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Liberal Land Policy of the Victorian Government of Australia

Best of Irrigated Lands offered settlers at \$30 to \$100 per acre and 3 1/2 years granted to pay for purchase.

No government has ever offered such unusual opportunities to secure a home as Victoria. The finest of lands, adapted for all kinds of horticulture and agriculture. Climate mild and pleasing like California. Lands are under the finest irrigation system ever conceived by any government. Every inducement offered settlers.

Recent American visitors inspecting these lands were wonderfully impressed. Reduced steamship passage one way or return. For particulars call or write Mr. F. T. A. FRICKLE, Government Representative from Victoria, c/o Peck Judah Co., 687 Market St., San Francisco.

THE LAST CALL

ORO LOMA FARMS

Best Land In The San Joaquin Valley

\$75.00 an Acre With Water

YOU DEAL DIRECT WITH THE OWNERS

Clark & Reed

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SAN FRANCISCO, CAL.

FARM BOOKS.

The following list of farm books are kept in stock and will be mailed on receipt of prices quoted:

Farm Development, Hays.....	2.00
Manual of Laws.....	2.25
Farm Buildings.....	2.20
Breeding Farm Animals, Marshall..	1.60
Hog Book, Dawson.....	1.60
The Dairy Farm, Gurlier.....	1.10
Greenhouse Management, Taft.....	1.50
Mushroom Culture, Falconer.....	1.00
The Study of Corn, Shoesmith.....	.50
The Hop, Myrick.....	1.50
Meadows and Pastures, Wing.....	1.50
Trees and California, Jepson.....	2.50
Asparagus Culture, Hexamer.....	.50
New Onion Culture, Greiner.....	.50
American Cattle Doctor, Dadd.....	1.00
Home Pork Making, Fulton.....	.50
Farm Gas Engines, Brate.....	1.10
The Book of Alfalfa, Coburn.....	\$2.00
Swine in America, Coburn.....	2.50
Feeds and Feeding, Henry.....	2.25

Send remittances to

PACIFIC RURAL PRESS,
420 Market St., San Francisco.

COST OF KALE FOR COW FEED.

Growing kale for dairy feeding is still growing in popularity in western Oregon. The following is a record of experience read by Prof. Kent during his lecture at the Oregon Dairyman's Association. It is one of hundreds sent in in response to requests from the experiment station at Corvallis, and is from a prominent Benton county farmer:

I am sending you a detailed tabulation of the cost per ton to produce kale as we care for it.

We figured 20 cents per hour for a man's work, and 40 cents per hour for man and team, and 30 cents per hour for man and one horse to cultivate.

We took what we considered an average row of kale, and cut and weighed it for our average yield per plant. Then we have kept time on several occasions while gathering to feed. From this we base our cost per ton for gathering.

I think you will find our estimate very moderate on the weight of plants, for we deducted two pounds from each plant for fear we might not have made a fair estimate in choosing the plants for weighing. Our estimates are as follows:

2300 plants, average weight 16 lbs. each, 32,200 lbs.—16.1 tons. These plants grown on just one-half acre black clay loam.

Fertilization, two men and one team,	
16 1/2 hrs.	\$10.00
Plowing, man and team, 2 1/2 hrs.	1.00
Harrowing and cross harrowing, 2 hrs. ....	.80
Discing with wheel harrow, 2 hrs. ....	.80
Clod-mashing, 2 hrs. ....	.80
Replowing, 2 1/2 hrs.	1.00
Harrowing and cross harrowing, 2 hrs. ....	.80
Discing and cross discing, two times	
4 hrs.	1.60
Clod-mashing, 2 hrs. ....	.80
Plants,	1.00
Transplanting, 20 hrs.	4.00
Cultivation, 4 times, 2 1/2 hrs. each	
time, 10 hrs.	3.00
Hoeing twice, 10 hrs. each time, 20	
hrs.	4.00
Pulling weeds, once, 4 hrs. ....	.80
Harvesting, 36 1/2 hrs.	7.30

Total.....\$37.70
16.1 tons at total cost of \$37.70—\$2.34 per ton.

This estimate does not include rental value of land, nor value of the manure, before application.

CARROTS FOR HORSES.

Carrots are by far the most suitable roots for horses; and where the land is suitable they certainly pay to grow for winter feeding, when there is nothing green or succulent available, says Pately Bridge in Farm and Home. There is not much to choose between the common red and the white Belgian so far as feeding properties are concerned but the latter is by far the heaviest cropper, and in the eastern counties, particularly parts of Suffolk, Belgian carrots are largely grown for stock feeding. With reference to their feeding properties, they rank next to parsnips in albuminoids and to sugar-beet in carbo-hydrates, and are in all respects superior to turnips, swedes, and mangels, and better for horses than any of them. Carrots must not, of course, be made the staple diet of working horses, or be given in excessive quantities, and especially to horses whose work is hard, and performed at a rapid pace, because "hard condition" cannot be maintained on them. They will not replace corn. For sick or idle horses, or those at slow work, carrots may be used more freely. They possess alterative and slightly diuretic properties, and are much better and safer than the heavy dose of saltpetre and sulphur that the carter is so fond of giving to his charge when, constantly on

SHIRES STALLIONS AND MARES



It is often said that the sire is half the herd; but if he is a bad one, he is the whole herd, or at least he has it in his power to ruin the whole herd.

If you buy a stallion or a mare, buy the best you can find; you cannot expect high-class colts from an inferior stallion, even if he is registered and imported.

If you want a good one, that will make money for you, come to

SALVADOR STOCK FARM, NAPA

Stallions from \$1200 up; mares from \$500 up.

HENRY WHEATLEY, Napa, Cal.

WORLD'S RECORD HOLSTEINS



Aralia De Kol, one year.....28,065.9 lbs. milk
Saddle De Kol Burke, six months.....18,285.8 lbs. milk

Place at the head of your herd a bull strong in the blood of these cows.

We invite you to inspect our herd and will cheerfully give you further information and prices.

A. W. MORRIS & SONS,
Woodland, Cal.

\$8.50 Buys The Best Horse Clipping Machine in the World

That's the price right at your dealer's for this wonderful Stewart Ball Bearing Enclosed Gear Machine. Every horse should be clipped in season and this machine will do it easier and quicker than any other. Has all file hard cut steel gears, enclosed, protected and running in oil. A marvelous machine. Clips horses, mules and cows. Get one from your dealer or write for our complete catalogue. Send a postal today.

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for Milk Cows and Chickens and Young Pigs and Hogs. Cheapest food in the market today. If your dealer doesn't carry it address
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We are the original builders of irrigation systems. Our Gates and Valves are perfected products of years of experience as practical irrigators and manufacturers. We can prove our claim to having the system that will yield the greatest returns on the investment, from the standpoints of initial cost, ease of operation and saving of water and labor. Cut out this ad, mail to us and we will forward out booklet on Modern Irrigation Methods.

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(INCORPORATED)
461 Market Street San Francisco

dry food, they get a bit "hunchy"; or than the tablespoonful of nitre which he puts into the weekly mash under the impression that it is "good for the water." The horse-owner will generally find it more to his advantage to allow carrots than to permit or encourage drugging. Carrots are excellent for horses suffering from chronic cough and broken wind, as well as for some eruptive diseases of the skin associated with indigestion. A few pieces of carrot will often start a sick horse eating; while, sliced or pulped, and mixed with the corn and chaff, they will often tempt the appetite of the poor or "picky" feeder. In more ways than one, carrots will help the poor hay of the season—rendering the chaff more palatable, and less likely to affect the wind injuriously.



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Fowler's Solution for the Heaves.

A few weeks ago, Dr. E. J. Creely prescribed Fowler's Solution in reply to inquiry in these columns for a treatment for heaves. Subsequently the horse died, but this fact had no connection with the prescription. As the matter has perhaps attracted the attention of some readers, it may be desirable to mention the good standing of this remedy for the heaves, even though the disease is not so serious in this State as in other parts of the country.

B. W. Keen of Idaho, gives the Western Farmer of Spokane the following outline of his experience:

During my farm experience I have had several horses more or less affected with heaves. Two of these horses were killed and decently buried as soon as the disease got so severe they could no longer maintain themselves in fair comfort and flesh. Two years ago, the horse used on our milk wagon began to show signs of heaves, and we immediately cast about for some remedy or at least something to relieve the horse. In the first place a rigid rule as to the feeding was made. No dry or dusty hay or underground grain of any kind was to be given, the hay rations were to be made light and there value to be made up by increasing the grain, which was to be oats and corn ground together even weights by the bushel. This ground grain to be scattered over the hay in a tight crib which had

been previously well moistened with water. The horse was not to be harnessed, except for her regular work, which consumes five or six hours every day.

For a remedial agent we began to use Fowler's Solution of Arsenic, in two teaspoonful doses at first, once a day, put in the water with which the hay was moistened. These doses were given for a few days, then skipped for a day, then continued for five or six days again. This treatment has been continued. At times when the trouble was most severe, giving a great spoonful at a dose, twice a day for two days, then stopping for a day or two, always being sure to mix it with the water which the hay is moistened, so that it shall be taken into the stomach very slowly.

This course of treatment has served to so relieve the disease that nature has nearly or quite overcome it. My idea being that as soon as the cause was removed and the horse relieved by the action of the weak solution of arsenic, nature given a chance, has so built up the general health of the horse that she has been able to practically overcome the disease. She keeps in good flesh, feels well and is quick and active, being particularly valuable for the work she is doing, as she knows the route as well as the driver, is perfectly safe, and can be trusted to come home alone, after her work is done if necessary.

I conclude that if those who have horses affected with this serious and really incurable disease will adopt a rational system of feed and care, will put them only to regular work, and use Fowler's Solution of Arsenic with care they will, at least, so relieve the trouble, that the life of the horse will be prolonged, and its usefulness continued for many years. The use of arsenic has not been continuous. We have fed none for the last six weeks, and I noticed as the horse went to her work this morning, her breathing was natural, her eyes bright and her courage equal to the emergency of the day.

TOO POOR TO OWN A GOOD TEAM.

Among the popular rulers in the German Empire the Grand Duke Friedrich August of Oldenburg may be placed in the first rank, for he is greatly beloved by his people. While out motoring lately he had the misfortune to come into violent collision with a cow which belonged to a peasant woman. He sent one of his secretaries to the woman to express his regret at the accident and to ask what the value of the cow was. The woman listened quietly, and answered, "What! our duke killed my cow? I'm sure he never did." So the emissary returned. The Grand Duke sent another of his suite to explain the matter and to pay the value of the cow. At last the old lady said, "If it is really our duke who killed my cow I am sorry; I am also sorry that he is so poor as not to be able to afford to drive about with a good pair of horses instead of going in a stinkpot; and as he is so poor I will gladly make him a present of the cow." And she adhered to this against all argument.

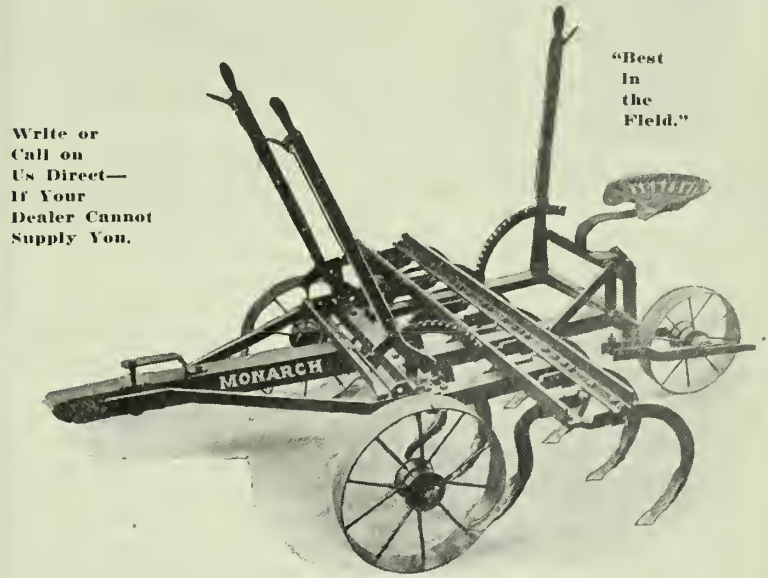
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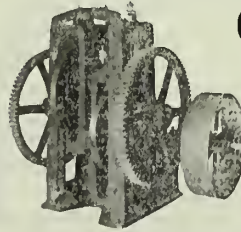
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Points on Butchering.

[When animals are right to kill and how to get the best out of them, is a regular line of instruction in animal industry courses, and as education proceeds in vocational lines it is to be expected that these important matters should receive increasingly intelligent treatment. We find interesting indications of this fact in the various publications to which we give careful study, and we draw a few paragraphs which may be helpful to many.—EDITOR.]

HINTS ON CONDITION.—Andrew Boss of the Minnesota University Farm remarks: Animals with fine bones, soft, luxuriant hair, are more likely to yield good quality of meat than those with coarse bones and wiry hair.

An animal should never be losing in flesh at the time of slaughter. If failing, the muscle fibers are shrinking in form and contain small amounts of water. As a consequence, the meat is tough and dry. When the animal is gaining in flesh the opposite condition obtains, and a better quality of meat results. A better meat product will be obtained from an animal in only medium flesh, but gaining rapidly than from an animal that is very fat but not gaining in flesh.

PREPARATION OF ANIMALS FOR SLAUGHTER.—Animals intended for slaughter should be kept off feed from 24 to 36

hours. If kept on full food, the system is gorged, and the blood loaded with assimilated nutrients is driven to the extremities of the capillaries. In such a condition it is impossible to drain out the veins thoroughly when the animal is bled and a reddish colored, unattractive carcass will be the result. The blood is the most easily decayed substance in the animal carcass and often causes trouble in the curing of meat. Food in the stomach decomposes very rapidly after slaughter, and if the dressing is slow the gases generated often flavor the meat.

Water should be given freely up to the time of slaughter as it keeps the temperature normal and helps to wash the effete matter out of the system, resulting in a nicely colored carcass.

It is important that the animals be not excited in any way sufficiently to raise the temperature of the body previous to killing. Excitement prevents proper drainage of the blood vessels and, if extreme, will cause souring of the meat very soon after dressing. In no instance should an animal be killed immediately after a long drive or after a rapid run in the pasture. The flesh from animals overheated is usually pale in color and often develops a sour or putrid odor within three or four days after being dressed. The animals should not be chased or driven rapidly, nor should they be handled in such a way as to bruise the bodies. Bruises cause blood to stay in that portion of the body affected and often causes the loss of a considerable portion of the carcass. A 36 hour fast, plenty of water, careful handling and rest before slaughter are all important in securing meat in the best condition for use, either fresh or for curing purposes.

MEAT DEMONSTRATION AT CORVALLIS.—The meat demonstration put on by the Department of Animal Husbandry of the Oregon Agricultural College during farmer's week proved one of the most unique and instructive educational events of the Northwest. Especially was this true of the second day's work, which was with the carcasses. On the first day different types of market animals were brought in and their good and bad points discussed from the standpoint of the butcher and packer. On the second day the carcasses from these animals were brought and the good and bad points of each shown. Then these carcasses were cut up into the wholesale cuts. The percentage of each cut was shown, together with the method of cutting, and also the prices. Then all of the common retail cuts were shown with the prices. The work was done by Wm. Constantine of the Alder Market of Portland. Mr. Constantine emphasized especially the differences between the various cuts and their possible uses. He was very strong in his condemnation of the demand which forces the price for certain cuts up to two or three times that for even more nutritious cuts from the forequarter. He stated that many of these so-called inferior cuts were more palatable and nutritious when properly cooked than the high-priced steaks. He called especial attention to the fact in the country and the small towns where pot roasts and boiled dinners are more popular, the difference in price between the various cuts is very much less than in the cities where frying and broiling are almost the exclusive methods of cooking. Mr. Constantine had no trouble in holding the attention of 300 people for two solid hours. The Department of Animal Husbandry was so well pleased with the work that they will make such demonstrations an annual feature hereafter.

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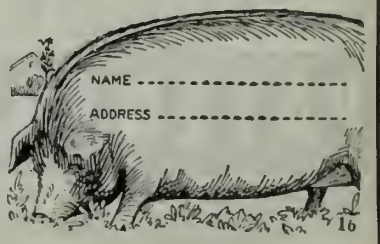
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LO, THE POOR DAIRYMAN!

It is interesting to find the presiding officer of a State Dairy Convention departing a little from the optimism which usually attends such leadership and giving us this much of a acidity in his milk. These are the words of Donald McInnes at the recent dairy convention in Washington:

"In looking back over the past year I find that prices paid for dairy products and by-products have been good, but the net profits have not been nearly so large as the profits in other lines of business where the investments are not nearly so great nor the business so onerous. No other class of business men put in as long hours or labor under such trying conditions as the dairy farmer. For him and his family there is practically no recreation, no holidays, no Sunday off—they must be on the job all the time. I say "they" from the fact that it frequently requires the work of the entire family to make the investment pay a fair rate of interest, and yet, strange as it may seem, the public, generally led on by the press, begrudge the farmer what he is making, and seem to think that because the cost of living has advanced the farmer is getting all the benefits of the advance. Such is not the case. All of the clothing, boots and shoes, farm implements and machinery, and the necessities of life that the farmer and his family must have, in some instances have doubled. For food of all kinds to board his help and the wages he has to pay, he finds a marked increase in prices. The winter grain rations of his cows have advanced about 100 per cent in the last 12 years—and so on down the line. Ten or 12 years ago a dairy farmer in this State, during the winter months, received about 29 cents as the highest price for butter fat, and yet made more clear money than he does with butter fat at 39 cents.

The high price of mill feeds cuts out practically all of the profits of winter dairying, and in my judgment they are artificial and caused by the mill combination on the Coast. All kinds of business in the State, save one, and that is dairying, seem to be able to form combinations and operate with impunity; and yet when a certain milkman of the city of Seattle, a year or so ago, was charged with forming a combination to govern the price of milk, instead of being classed with other trust magnates as a public benefactor lending his best energies and talents solely for the benefit of the public, this trust promoter was promptly arrested, tried, convicted and jailed. I have not yet heard of any other combination in the State being even charged with a crime."

TO FEEL THE PULSE OF A HORSE.

Do you want to feel the pulse of a sick horse. The pulse may vary from 28 to 40 pulsations a minute. Don't get discouraged at the following until you come to the end, and it will tell you how the pulse of a sick horse is going. We get it from the Oregon Agricultural College.

"The best place to take the pulse of the horse is at the point where the sub-maxillary or facial artery, in company with the vein of the same name and Stenson's duct, turn around the edge of the inferior maxilla or lower jaw bone, in other words, on the lower border of the jaw bone, about four inches in front of the throat latch."

The value of a good brood mare is demonstrated on the W. W. Boyd ranch near Hanford. A fine grade Clydesdale mare has been kept for many years and besides doing excellent farm work has

raised a family of five colts, one of which recently sold for \$250 and the others at various times for amounts nearly as

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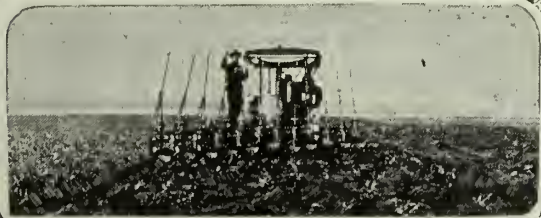
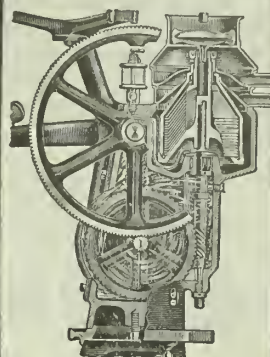
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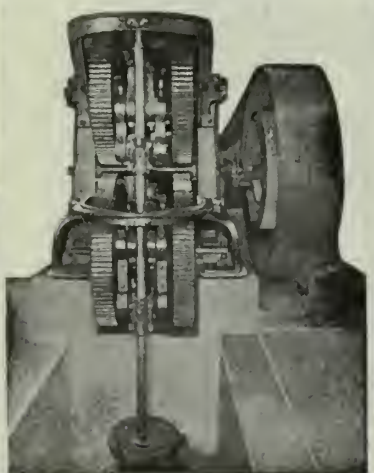
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[Written for the PACIFIC RURAL PRESS by
Mrs. SUSAN SWAYSGOOD.]

The great mid-winter show of the Pacific Coast is now a thing of the past, but in its wake is a lot of tired-out people. For my part it has been a case of Grippe with a big G, and today my mail contained a letter from another exhibitor who has been similarly afflicted.

The history of this eighth annual poultry show of southern California will be remembered as one of the unexpected things that crop up to make men grow back-bone. On Saturday, January 4th, the big tent in which the show was to be held was swept up and carried away in the storm that swept this coast. Monday found the show committee with a poultry show on their hands but no place to hold it in. The Sunday papers stated that the show would be postponed, but I said to a neighbor who read it, not if Jos. E. Davis is able to get around on his legs. And so it turned out that for once, knowing my man, I was a true prophet, for in Monday's mail came tags for the coops and instructions where to ship.

Now, was not that a quick move, that proved the California Southern Breeders Association had the right man in the right place? The show was held in the old post-office building, which was large, light and airy, in fact a little too airy, but everybody appreciated the situation and things moved along in harmony.

SMUDGED POULTRY.—All chickens that went from the districts where smudging was carried on suffered greatly in comparison with those coming from further north where there is no smudging. I presume the judges did not know what to make of them, and one or two exhibitors after entering failed to send their exhibits, feeling they would stand no show with better laundered birds. And they were right, for judges can only go by present conditions of the birds before them, and some of the smudge victims sure did look smutty. I washed 25 birds, some of them twice over, and they were not fit to look at when all my work was done.

Of course advisers were on hand to discourage and hinder my efforts, but when yours truly starts on a trail, there's no looking back, or stopping half way. And those chickens went to the show, with their clothes soiled it's true, but they went just the same and some of them got blue ribbons, too. The chickens earned the ribbons and I earned what I got—the grippe.

LOTS OF BIRDS.—In round numbers there were 2484 birds in the show, pigeons not included. As there must have been at least one thousand pigeons, you will see that this was some show. Another nice attraction was a large class of beautiful singing birds, and this certainly drew crowds. In fact there was a continual stream of visitors coming and going throughout the aisles nearly all day long.

And talk about variety; there was very kind of poultry to be found on the map. Even the old varieties that have been seemingly dead were represented, and some we never saw before. We were especially pleased to see some of our old-time favorites, the dark Brahmas, and they were good specimens too.

ROCKS.—The following figures are from the official catalog, so may be relied on as correct: In Barred Rocks there were 17 competitors in cock birds, with a little variation in other classes and a total of 231 specimens; every place was fairly contested, for the quality was high. In White Rocks there were 14 contestants for the blue, and a total of 117 birds; and it is safe to say that no better White Rocks

can be found in America than were gathered together at the Los Angeles show. There has been great improvement in White Rocks the past year, and these were the best all right. The Buff Rocks do not seem to have as many admirers, as there were only 37 on exhibition and only four contestants, but the quality was there. Judge Palmer, of Yorkville, Ill., had the placing of the Barred and White Rocks, and Judge Harrison of Pasadena placed the Buffs.

Partridge P. Rocks with seven exhibitors totaled up to 62, and they, too, were very good birds. Judge Palmer placed the awards in this variety. The Columbian Rocks had no competition, all being owned by one exhibitor, and made a total of 10, but they were good specimens.

There were just two specimens of Silver Penciled P. Rocks, making a total of 452 Rocks, all varieties.

WYANDOTTES.—The Wyandottes were all judged by Geo. W. Masterson, and all varieties were well represented. But the fun commenced with the whites, for with a total entry of 77 birds, there were 13 contestants, and this gives spice to the winning sure, and proves the quality must be good. Buff Wyandottes with a total of 13 and two contestants were of good quality. Partridge Wyandottes had a total of 92 birds and eight contestants for honors. Columbian Wyandottes, the one-time popular breed, were represented by three exhibitors and a total of 12 birds. Three Black Wyandottes made up a total of 225 Wyandottes, and all of fine quality.

RHODE ISLAND.—A. G. Goodacre judged the Rhode Island reds and whites, and in reds he must have been kept guessing, for in a total entry of 125 there were something like 17 old-time warriors after the ribbons, this in S. C. reds. In R. C. reds, with a total of 23, there were three exhibitors. Total reds, 148. In R. I. whites there were but 15 and two competitors.

BRAHMAS AND LANGSHANS.—Wm. T. Blakely placed the awards on the Brahmas. The total light Brahmas were 24, three competitors. Four dark Brahmas made a total of 28. The Cochln entries were also small, 19 being the total in all classes and varieties.

The Langshans, that for a while have seemed to be losing ground, are coming back to sue for public favor. There were 77 Black Langshans and 12 White Langshans, every one of them fine birds. A. G. Goodacre placed the awards on the Langshans.

LEGHORNS.—Brown Leghorns were a small class, but made up in quality what they lacked in quantity. Still we remember the time when 39 Brown Leghorns in such a large show would have been thought a very small class. Ben M. Woodhull placed the awards and J. L. Harrison placed the White Leghorns, which had a much larger showing with a total of 134 birds of all classes.

The Buff Leghorns were not a very large showing, but very good in quality and well contested. Total Leghorns, 233.

MINORCAS.—S. C. Black Minorcas, Geo. W. Masterson judge, made a total of 152 and every place was well contested. One Rose Comb black Minorca pullet looked lonesome. In R. C. whites there were a pen and a cockerel, and in S. C. white Minorcas 41 entries; Buff Minorcas 57, making a total of 257 Minorcas.

Blue Andalusians were a very nice lot of birds and there were 61 of them, and 97 Ancona's Silver Campines seemed to be much improved over last year's exhibit. There were 58 silvers and 6 golden Campines, making a total of 64. There were three Red caps.

ORPINGTONS.—In Buff Orpingtons there were 96 birds, and here was competition—13 contestants and all old-timers that

POULTRY.

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knew when they were beat. Talk about quality! Well, Judge Byers told me for a fact that he never ran up against such birds, either East or West. He said from now on it will be the West sending quality to the East. What he thinks is that we have them beat right now. The Blacks had 76 entries of just as high quality; with a grand showing of 123 whites, 17 Partridge Orpingtons, and three Jubilees. Total Orpingtons, 315.

As usual the Orpingtons were the most hotly contested classes in any show. Judge Byers of Indiana placed all the awards and gave general satisfaction. It is a hard task to say which is really the best bird where there are so many good ones, and I would not envy any judge the job.

Bantams were out in all varieties and the quality was very good; in fact that was the sum total of everybody's thoughts, that in all the exhibits the quality was so much better than has been the rule.

PROGRESS.—The one lesson to be learned from this show is that it will not pay to stand still. Those who expect to win must progress with the times. There are men in the fancy now that have brains and money, and they are proving that both are necessary in breeding and exhibiting fancy poultry.

One Buff Orpington pen was decorated with 12 specials and this pen was owned, had been bred and raised by a man old enough to be Oslerized, if the Doctor ruled the world, which we are mighty glad he does not. Just think of the patience, thought and time consumed in reaching this ideal pen of birds! Has he simply helped himself? No indeed; he holds that ideal up for all to see who will and to beat who can. This man kept on his feet all day long, showing his birds to those who took any interest in looking, and to me this is the most tiresome part of a poultry show, but this man never seemed to tire.

Well, this is the last time I will try to condition birds for the great Mid-winter show, unless the citrus growers find a cleaner and whiter method of smudging. Say, without telling tales out of school, it is simply awful; if the hot place is any worse, I do hope never to be consigned to the regions dim.

CO-OPERATION AND EGG SELLING.

At the recent meeting of poultry producers in San Jose, President E. B. Smith spoke on the high cost of marketing eggs, as follows:

I wish to refer particularly to eggs and poultry products, and to endeavor to show where co-operation in producing and marketing brought results, not only to the producer, but to the wholesaler or commission man as well.

Co-operation has become the keynote of all agricultural effort in this country. There are co-operative creameries, breeding associations, egg and fruit associations, etc. From a money-making standpoint the results are remarkable. No man in his senses proposes to abolish entirely the trading and selling machinery of the country. The new systems of handling farm produce will not interfere with the legitimate commission business of the country. Commission men will always be a necessity. They are an established commercial organization. But we must make it impossible for any man to stand between the producer and the

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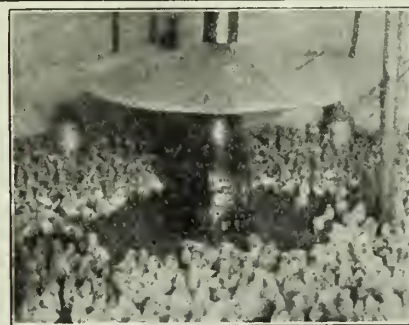
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consumer, solely for taking profits from both.

IN THE MATTER OF EGGS.—Now the question of market quotations on eggs and poultry are being largely discussed. The commission man in San Francisco is getting the blame for fixing egg prices. The producer is entitled to get a share in the profits now going to the middleman. The only way that the poultry producers can come into their own and control the price of their product is by working together hand in hand. The poultry producer will have to organize the same as the fruit men have done.

WHAT FRUIT MEN HAVE DONE.—A few years ago, as we all know, the citrus fruit growers of California were a widely scattered, unorganized group of farmers. The growers received only a very small percentage of the amount the consumer paid for his fruit. Someone conceived the idea of organizing all the producers of the region into a sort of co-operative association. It was pushed forward by the big producers and it soon spread to include about 70 per cent of the citrus crop. The result we all know. It has put the products of the region into every market of the country, and has made California one of the wealthiest groups of farmers in the world. It has given all the people of the country better fruit at fair and reasonable prices.

Other special farming groups have worked out similar plans. The apple growers of Oregon have succeeded so well by co-operation that they serve the trade in the greatest apple regions of the country. I give these as examples to illustrate the extent to which organization can be carried in the selling of farm products. It will be noticed that these organizations in California and Oregon and in many other sections of the country are local institutions having as their object the helping forward of farm products. This, of course, includes poultry products and dairying, in those particular regions.

WHY THE EGG MAN?—I do not believe that the poultryman gets enough for his products. I mean he does not get as large a share of what the consumer pays as he should. The consumer in the East pays 60 cents a dozen for his eggs, for which the farmer gets 25 cents and the railroad two cents, less breakage. We do not want to raise the price of eggs, especially in the winter. What we are after is some of the profit that is made between the producer and the consumer. The farmer, and I include the poultryman when I say farmer, works harder and longer for his money than any other class of men.

The poultrymen of this State, and especially those catering to the San Francisco market, must take steps to claim recognition in the laws of the State. They must get together as have the fruit men, and stay together and work together, and by so doing then they will be able to dictate the prices for which their products are to be sold, and not the commission man. At least they could demand a greater share in the profits. By co-operation they should handle their own products, and not be obliged to trade with the middleman. This idea is coming to the front fast in all farm-producing localities and will, I have no doubt, be important in the high cost of living. To get more of the profits of their labor and investments by taking a larger share of the profits from those who do not produce.

AN EASTERN ARGUMENT.—There are some very good points in this connection made by Mr. Ellis of the Aurora Egg farms, in the Reliable Poultry Journal. Some of you may have seen it. He says: "When an article like an egg is the product of bountiful nature and represents but little of human effort the selling price is mostly determined by the law of supply and de-

mand, and it may sell as low as six cents a dozen at the farm. But just as soon as man's labor is a factor in the production of any article the operation of supply and demand is limited. To wit: a price below the cost of production cannot exist, except as a temporary condition. Furthermore, this new man-made industry of modern poultry farming is going to follow the lines of all industries recently created. The cheap hen picking up her living on the farm is being displaced by the mau-fed hen. Greater care is being used in selecting the hens that are to receive an amount of attention never before given their ancestors. A man may let any old hen roam about his barn, but if he is going to give his attention and time to taking care of her he is going to demand that she be of a productive kind sufficient to warrant his expenditure of time, money and labor."

POULTRY-KEEPING PROGRESSIVE.—This brings us to the stage of the industry where men consciously expend effort and even genius to improve the breed. It places poultry-keeping among the modern created industries and as such, subject to the laws of prices set forth. Men, by neglecting to pay attention to some by-product, as in the case of the egg, may accept less for it than its true worth, but when they put forth their efforts to produce a thing they are not going to do so if they are forced to sell below cost, and a reasonable profit. Another very interesting phase of the matter is the proportions of the price the consumer pays that ultimately reaches the producer.

In the past if the farmer got half of what the consumer paid he did well. That still holds true in the case of many farm products, which because of their perishable qualities or the amount of additional labor still needed to fit them for the consumer's use are in a class that precludes their being handled direct from the producer to the consumer.

Eggs, however, are susceptible to this direct distribution more than anything produced on the farm. Co-operative selling and distributing is already an accomplished fact in the poultry world today.

DISPOSITION TO CO-OPERATE.—It is now time to take up the methods that we may follow. I am glad to know that the Petaluma people have started the campaign and all the poultry men in the state should co-operate with them, especially should those supplying the San Francisco market. Petaluma, Santa Rosa, Alameda county, Santa Clara county and all the egg-producing sections should get together and establish an exchange in San Francisco.

LEGISLATION PENDING.—I note that Assemblyman Slater of Santa Rosa intends to introduce a bill at the coming session of the legislature that is designed to lower the cost of living by doing away with the middleman and putting an end to artificially inflated prices on market products.

As I stated above, I do not think the commission man can ever be entirely disposed of. As in the case of perishable farm products, there is a class that precludes direct handling between producer and consumer.

What we should legislate against is a group of middlemen establishing themselves into an organization that tends to corner or control the supply and therefore make it impossible for them to set the price. Also we should have proper laws to govern cold-storage uses. Eggs or butter should not be allowed to be kept in storage over one or two months—one month is better—just to help fill the pockets of the speculators.

Eggs should be sold fresh. Everybody wants a fresh egg and should be able to get it. In fact, it should be made impossible to get one that is not fresh.

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EGGS \$6 per hundred in lots of less than 83 dozen lots. Orders in excess of above, 10 cents per dozen above highest market price. 75 per cent fertility guaranteed.

8000 hens yarded—sanitary conditions perfect. Well raised—well fed—well culled—eggs will produce layers.

PENS—TRIOS—SINGLE BIRDS OF ALL BREEDS.

BUFF ORPINGTONS—WHITE WYANDOTTES—RHODE ISLAND REDS AND BARRED PLYMOUTH ROCK baby chicks at \$15 per hundred and \$6 per hundred for eggs.

JAPANESE SILKIES—SILVER SPANGLED HAMBURGs, eggs by the setting at from \$1.25 to \$2.50 per fifteen.

S. C. WHITE LEGHORN pullets from \$7.50 to \$15 per dozen.

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Eggs and stock from prize winners a matter of correspondence.

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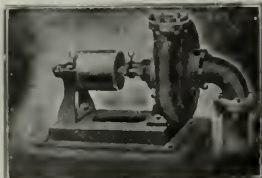
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WHICH CROP OF ALFALFA FOR SEED?

To the Editor: In answering C. E.'s question about raising alfalfa seed in California in your issue of Jan. 11th, you advocate leaving the second cutting for seed. I hulled some 25 to 30 jobs this season. Some had left second, some third and some fourth cuttings for seed. We found the second cutting very poor both in yield and grade, much of it not being well filled and the seed blighted, as the growth of hay was too heavy.

The seed on third cutting was good both in grade and yield. Much of the seed on fourth cutting was not matured and will not germinate.

For good results the stand should be thin. Our drier, heavier lands give the best results, sub-irrigated lands not seeding. All irrigation should stop with the last cutting for hay.

Modesto. O. E. LAMBERT.

[This is very interesting and shows how much good information a careful reader may give in a short communication.]

It is clear that in this matter, as in most other agricultural methods, one must be guided by judgment based upon actual observation and experience. Which cutting is best for seed depends of course in the way the plant grows in your locality. Where it starts early and gives many cuttings in a season with irrigation a later growth should be chosen for seed than with a short season where fewer cuttings can be had. The second cutting is best in many places as we stated—but that is not a universal rule, as Mr. Lambert shows.—EDITOR.

HEAVY BEARING OF GLEN MARY STRAWBERRY.

To the Editor: In my estimation there is no strawberry that will give the yield of the Glen Mary. During the season of 1909, I had eight rows, each 65 feet long and each containing 50 plants to the row, or 400 plants in all. Every berry was weighed, and from this plot there was picked and weighed \$16 lbs. and 14 oz. Some \$38 worth was sold at 8 cents per lb.; the balance was used at home or given to friends. A value of 8 cents per lb. was given to all berries gathered. I could have sold ten times the amount if I had had the berries. A little figuring will show that an acre at the above rate would have produced \$1824.91 or \$16.34 per plant or \$1.02 to every eight feet of row.

The above data were figured out to show what could be done on a small piece of ground. The calculation was given to the 1910 census enumerator, and is in record at the U. S. Census Bureau at Washington, D. C. When I can get a berry that will equal the Glen Mary I will take my hat off to it.

Morganhill. J. LUTHER BOWERS.

DISTILLATE FOR SQUIRRELS.

To the Editor: I have noted with interest your articles on the identification of ground squirrels, and am constrained to tell of the method I have found most practicable of all.

Saturate a small wad of burlap, half the size of a base ball, with engine distillate, and poke it well down into the main runway of the squirrel habitation. Then close up all the holes with soil. I have yet to find a single instance of a squirrel hole being re-opened from the inside after this treatment; and it has proven effective in cases where poisoned grain failed after repeated applications of various kinds of poisoned grain preparations. It will sometimes happen that members of the family are out when the

distillate is applied, and upon their return will reopen the hole. In such cases two or three applications will be needed, although in the majority of cases one is enough.

Modesto.

C. J. NOEL.

CALIFORNIA GAVE A MAN TO OREGON.

J. M. Dickson, the new president of the Oregon Dairymen's Association, is a gift from California. He is scotch, born in Nova Scotia, and came to California as a youth and taught school for 30 years. Then he decided he had done his share of the work in training the young mind, and entered his chosen profession of dairying, spending eight years at the business in Humboldt county, California. In 1909 he bought his present farm of 300 acres at Shedd, Oregon, and not only went into dairying but into the business of raising Jersey cattle, and the Pacific Homestead says he certainly has succeeded. To him dairying is synonymous with Jersey cattle. It is doubtful if he would even be willing to call any other breed a dairy cow. He now has sixty head of Jersey cattle on his place, and thirty of them are registered, or entitled to registry, and now comes the test of his life work. Out of these thirty head he has already had seven cows entered in the Register of Merit, and has seven more now on the way. The test on these latter will be finished soon. Three of them are well toward the 700-pound mark; one will probably surpass 700 pounds.

LAND DEALS.

More land deals, from Siskiyou to San Diego, are reported. In Siskiyou county 10,000 acres near Edgewood have just been deeded to the Smith-Emery Company of San Francisco. More land in the vicinity will soon be purchased by this concern. Several ranches adjoining Oceanside, San Diego county, have come into the hands of C. W. Spencer of Massachusetts for a reported consideration of \$150,000. The Palmero Nursery Citrus Association property near Palmero, Butte county, has been sold to Grinnell Burr of New York, a nephew of Howard Burr, an early resident of Bidwell Bar. The consideration was \$100,000. About 160 acres are planted to oranges, olives and lemons. Another \$100,000 deal was for the Reed ranch four miles north of Gridley, Butte county. The property has been owned by the Earl Fruit Co. and was sold to John Silva of Sacramento. It will be part dairy, part fruit. The Lankeshim tract of 560 acres near Madera has been sold to J. M. Griffin. It will be subdivided and sold. Near Tulare a 520-acre tract of fine alfalfa land has been purchased by some Iowa people who will move on it at once. A section of citrus land near Terra Bella has been sold to Frank Thornburg of Pittsburg, Pa., for \$100 per acre. Near Woodlake, Tulare county, 700 acres of the Dale ranch have been sold to the Evans brothers, from Monrovia and from Kansas. The land will be set out to fruit and alfalfa.

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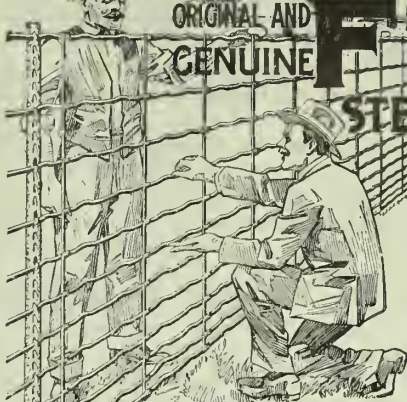


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AGRICULTURAL REVIEW.

Portland Stockyards Do Well.

The advantages of stockyards are suggested in the receipt of a weekly report from the Portland Union Stock Yards Co., dated January 24, which gives as good a summary of the market during the week as a stockman could desire. The receipts for the week were 1747 cattle, 30 calves, 3887 hogs, 3611 sheep, and 48 horses. Some representative sales were from \$7.65 to \$8 for steers, \$6.75 to \$7.25 for cows, \$5.50 to \$9 for calves, \$7.50 to \$7.75 for hogs, and \$7.25 for lambs, \$6 for wethers, \$5.25 for ewes. It can be seen that there is a difference in price for difference in quality, and that these prices are higher than those of California. In fact, about one-third of the stock handled was contracted stuff from California and Utah. Nearly all prices were firm.

Olives Popular.

The 320-acre ranch of James Duffy near Table Mountain, Butte county, has been purchased by J. W. Cooper of Alameda and Santa Barbara. It will be planted out to olives along with 200 acres adjoining which is owned by B. B. Meek and Herbert Johns.

The Oroville Olive Co. has been incorporated for the purpose of buying and developing land in Butte county for olive planting. The capital stock is \$50,000.

In Tulare county the Foothills Orchard Co. is to put out 240 acres to olives in the Duncor district. The olive planting of 5000 trees in the Huron district, Kings county, which was made experimentally last spring has done very well and will be extended the coming season.

More Beet Planting.

About 400 acres of beets have been arranged for in various parts of Riverside county this season with good prospects for more. The Anaheim Sugar Co. is contracting for them and will pay on the basis of \$6.75 for beets containing 20% sugar. It is stated that W. H. Bass, of Riverside, who had 10 acres in beets last year, averaged 19 tons to the acre, receiving \$1338 for them. Word comes from Visalia to the effect that a factory will be in operation there next year and that a large acreage will be planted. The company is leasing 4000 acres on the Tagus ranch and is preparing the land for planting. In the Sacramento valley the Alameda Beet Sugar Co. is laying 10 miles of 36-inch irrigating pipe from the Sacramento river to the company's land.

Holstein-Friesian Records.

During the period from December 8 to 23, 1912, records for 261 cows were accepted by the Holstein-Friesian Advanced Register. The average production, all ages, was 379.6 pounds of milk during seven days, with 13.356 pounds fat. The average test was 3.52, showing, as we have previously stated, that this breed is making progress toward richer milk, as well as giving such large amounts of it. The 69 aged cows averaged 447.8 pounds of milk with 3.55% fat, or 15.691 pounds for the seven-day average.

The Brown Swiss Association has also finished up some official tests, which are a new thing for this breed. In year records up to November 15, 1912, 21 aged cows averaged 11,550.5 lbs. milk, 448.30 lbs. fat; 4 four-year-olds averaged 10,613.4 lbs. milk, 424.73 lbs. fat; 2 three-year-olds averaged 8999 lbs. milk, 368.45 lbs. fat; 5 two-year-olds averaged 8904.3 lbs. milk, 375.57 lbs. fat. The average for all ages was 10,860.7 lbs. milk and 429 lbs fat.

Legal Matters.

The Federal quarantine on citrus and

several other kinds of fruits from Mexico which it was proposed to establish to prevent the entrance of the Mexican fruit-fly, has been imposed by the Department of Agriculture. Dr. Cook, State Commissioner of Horticulture, made a visit to Washington to speak in behalf of the order. There has also been several other legal steps taken or contemplated of interest to the fruit man recently. One proposition being considered is the prevention of the sale of frozen oranges, by the State Board of Health. The initiative proposition to establish a State Commission Board to sell farm produce on commission, which failed to get enough signatures to put it on the ballot last fall, has been made into a bill and introduced into the legislature. Another bill introduced is that all firms receiving consignments of farm produce must return to the shipper within ten days an account showing costs and expenses charged against returns, together with name and address of the purchaser, the condition of the goods on receipt, etc. A proposed amendment to the women's eight-hour law which will include women working in perishable fruit is arousing great opposition in the fruit districts and resolutions against it have been passed by numerous organizations.

High Butter Prices.

The average price of extra butter in the New York market during 1912 was 31.6 cents, the highest average obtained thus far. It is interesting to note that although 1912 was as a rule very much higher than 1911, the latter year closed with an average weekly quotation considerably above 1911. The first butter prices of 1912 were also several cents higher than those of 1913.

The storage egg market in San Francisco, as is probably known, is badly demoralized, and he dealers will be fortunate if they can get rid of all of their holdings before spring, although they are losing even at present prices. There is no hope of sending the eggs elsewhere, as other markets are equally loaded with a surplus. Apparently if eggs are not going to continue cheap somebody will have to go out of the chicken business.

Development.

The California Reclamation Board has approved the request of the Netherlands Farm Co. to create a reclamation project of the concern's holdings in Solano and Yolo counties. This property includes 25,000 acres of rich overflow lands, and its reclamation would add greatly to the value.

The Solano Irrigated Farms Co. has added the 5000-acre Muzzy ranch near Elmira to its holdings.

A tract of land along the Sacramento river in Colusa and Yolo counties has been placed on the market under the name Rivergarden Farms. It comprises 14,000 acres and is handled by Stine & Kendrick of San Francisco. A tract of 648 acres near Gray's bend, on the Sacramento river, was recently sold to Chittenden & Keller of Sacramento. South of Corning, Tehama county, 6094 acres has been purchased by the newly organized Midland Counties Land & Irrigation Co. This land will be subdivided and sold.

Distributors Hire Agents.

The California Fruit Distributors will be represented in the future by salaried agents instead of by brokers working on commission. These agents will also be connected with the Atlantic Fruit Distributors, and are in all of the leading

markets through the eastern half of the country. The centralization and efficiency resulting from the new principle of operation should be of great value in making a better distribution of fruit.

Poultry Show at San Mateo.

The San Mateo Poultry Association held its first show last week. There were 350 entries of high-class birds. A large percentage of these were from San Mateo county. The show was a pronounced success and will be an annual institution.

Logged-Over Land for Cattle.

A tract of 4,000 acres of logged-over land north of Weed, Siskiyou county, has been purchased by Dr. W. E. Tebbe of Weed and A. F. Emery of San Francisco. This land, with a large amount of adjoining property on which options have been taken, will be made into a cattle range.

The David Jacks Corporation has just shipped from its Monterey ranch a carload of Hereford bulls for use on its ranch near Elko, Nevada.

H. I. Shaw, Lakeside, San Diego county, has been adding a number of pure-bred Holstein heifers to his herd.

Creameries Want Better Cream.

The newly organized Creamery Managers' Association, as one of the principal features of its first year's work, is going to try to make an improvement in the quality of the cream handled by the association. Grades will probably be established and payment made on the basis of quality. This association differs from the Creamery Operators' Association in being interested in the business rather than the operating side of creameries. It will co-operate with the creamery operators and dairymen in fighting oleomargarine and the other evils that beset the dairy industry.

Dairy Short-horns Forward.

We have just received a letter from D. O. Lively, Chief of the Department of Livestock at the Panama-Pacific International Exposition, asking for the addresses of all breeders of dairy Short-horns, especially those who have kept a record of milk output, butter-fat production, etc. This information is requested by the Short-horn Association and has to do with the showing that will be made in the dairy division at the 1915 fair. It is to be hoped that every breeder who has given attention to the milking qualities of his Short-horns will respond.

Miscellaneous Stock Notes.

The Secretary of Agriculture has authorized the grazing of approximately 101,000 cattle, horses and hogs on the California national forests during the grazing season of 1913, and 467,000 sheep and goats. This is about 8,000 more sheep than were permitted in 1912, the other kinds of stock being about as before. The forests are said to be getting better rather than deteriorating.

Dr. Frank Griffith has been appointed live stock inspector of Kings county, taking the place of Dr. George Gordon, who held the position for two years.

Rain Helps Conditions.

The improvement in conditions from the recent rains is indicated in the following letter from a correspondent:

"We took a flying trip last week, stopping off at Davis, Woodland, Sacramento, Stockton and Martinez. Around these different sections the rain had accomplished wonders. The grain fields were taking on a greenish tinge, although in and around Stockton we found that during the extremely cold spell a good deal of grain had rotted in the ground. In the unplowed ground through Yolo coun-

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Special Attention to Out of Town Accounts
SAFE DEPOSIT VAULTS.

ty the rain had soaked down to the depth of a foot or more and the pasture lands were getting a good start, causing the stockmen to wear the smile that wouldn't come off. In the unirrigated orchards we found almost everyone had pruned very heavily, with the idea that the drouth of last season would make this year's crop very light and this season would be a good time to do some wholesale thinning. Taking the section of country as a whole that we visited, the prospects for a big crop of grain and hay are good. Plenty of pasture is promised and in a good many sections the fruit crop should be good."

Associations May Unite.

The Modesto Cured Fruit Association, a member of the California Cured Fruit Exchange, is raising \$10,000 to finance the packing and shipping of the 1913 crop. A proposition is on foot to unite with the Turlock Association in packing the fruit in a joint packing-house. Unless this is done, it is possible that fruit from both places will be shipped to Sacramento and packed. A campaign for more members is being conducted.

The Contra Costa Fruit Growers' Association is out in opposition to further restrictions of hours of labor for women in the fruit business. Resolutions also have been passed against making the application of accident compensation compulsory to farming and orchard classes. The Association is uniting in purchasing spraying and orchard supplies for the season.

Turkish Tobacco.

A large meeting of growers of Turkish tobacco was held in Fresno recently to discuss methods. One grower claimed that he would sooner grow raisins at 3 cents than tobacco at 35. Whether further planting will be done or not depends upon the offer that the American Tobacco Co. will make.

A big deal in barley was made recently when C. N. Thorup, of Salinas, purchased 22,676 sacks, weighing 2,238,605 pounds, from the David Jacks Corporation.

Heavy Fruit Planting.

The rains that have blessed the State this month have made lots of business for the nurseries. Around Durham, Butte county, 50,000 almond trees were recently planted, making the new acreage in Butte county greater than in any other county, it is claimed. Prunes, almonds, and cling peaches are said to be rapidly cleaning up. Apricots are in heavy demand and there is a good sale for nearly all other kinds of fruit.

Citrus Progress.

John H. Flagler, brother of Henry M. Flagler of the Florida railways, is to plant out 100 acres to lemons and oranges near Corona.

A large acreage of citrus land in the Mt. Campbell district, Fresno county, has changed hands and will be developed soon. There are about 1100 acres in the tract. The A. S. Spaulding Co., of Long Beach, is the purchaser.

ORLAND RESERVOIR FILLING.

The recent storms have been rapidly filling the Orland reservoir; for a while the water was coming in at the rate of 400 acre-feet per day. It will probably be filled to capacity by February 1. An assessment of \$1.30 per acre has been levied for 1913, a part of which will be a surplus and will be turned over to the government as partial payment for construction work. There are 14,300 acres in the project outside of the town of Orland. Of this amount 5,000 are not subdivided and are held by ten owners. The

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remaining 9,300 acres are held by 360 owners, bringing the average farm unit in the district down to 35 acres.

Boring for water in the valleys of the Sutter Buttes is being done by O. Moncur and son. This would be the best kind of fruit district if water could be secured. A large irrigation project is planned in Tehama county, and 20,000 inches of water in Cottonwood Creek have been filed on by J. G. Miller, R. L. Douglas and N. R. Smith. A dam will be erected and water taken to four townships in the center of the county on the west side of the Sacramento river.

Raisin Progress.

Word from Fresno is to the effect that good progress is being made in the securing of contracts for raisins by the California Associated Raisins Co. About 1200 contracts have already been handed in. The word that comes from the East is that the trade would be greatly pleased to have the company succeed in stabilizing prices and in increasing consumption of raisins, which would be accomplished if present conditions could be overcome.

Butter Grades Low.

The poor quality of the average lot of butter manufactured in the United States was shown during the past year by the investigations of the Dairy Division of the U. S. Department of Agriculture. There were 3,426 shipments of

butter inspected during the year by inspectors. Of these only 17.5% grades as "extras", or first quality, while 82.5% were of quality that had to be sold at reduced prices. The total loss over what would have been secured were all extras amounted to more than \$104,000. Of the lower quality butter 85% was made from poor quality cream, while 40% suffered from poor workmanship. In other words, the dairyman, by providing poor cream, is about two-thirds responsible for the loss of \$104,000 in our markets every year in selling low grade butter in place of first grade.

The Livermore Poultry Association has decided to dispense with its poultry show this year.

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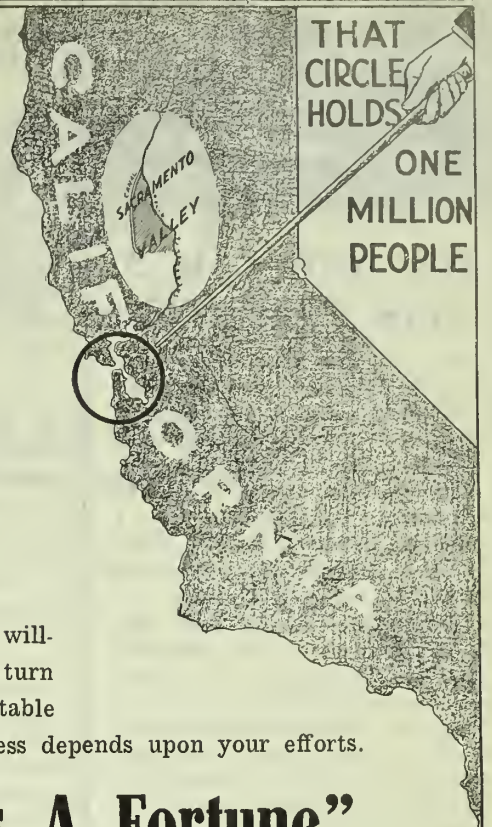
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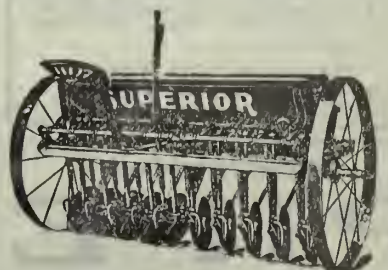
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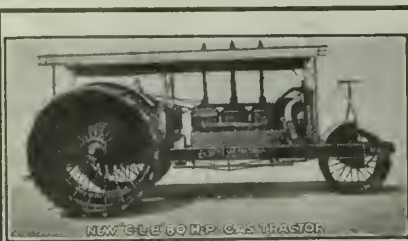
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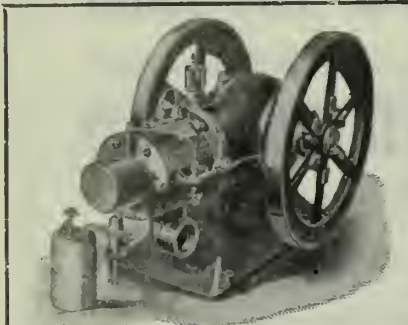
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PIPE

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1083 Howard St., San Francisco

The Home Circle.

Mrs. Delt's Change of Air.

"I hear you are going to leave us, Mrs. Delt," said Mrs. Gray to her right-hand neighbor at the sewing circle on Thursday afternoon. "I hope it isn't true."

"Yes, it's true," replied Mrs. Delt.

"Really, I am very sorry. I thought you were settled among us for life. You will leave a lovely home; there are not many such farmers as your husband. Will you go to the city?"

"Yes; we shall rent the farm for a year and occupy a rented house in Murray. When the year is up we shall settle there permanently if the change is satisfactory all around. We are leaving a good home, to be sure, but farm work is so wearing; I think a year's vacation will do us both good."

"You are wise not to sell the farm. A good farm is better than a bank to fall back upon. You were brought up on a farm?"

"On the stoniest old farm Vermont ever boasted. Father used to say that he had to file the sheep's noses so they could pick a living among the stones," laughed Mrs. Delt.

"But farming is so much easier in the West, don't you think?"

"It is different, of course. The farms are larger, though, and a farm is a farm anywhere. Plenty of work outdoors and in. But on the whole, I would not exchange for an Eastern farm."

"About your going away," resumed Mrs. Gray, resolutely, with an intention of getting down to the real cause, which was as yet a matter of speculation in her mind. "Why are you dissatisfied here?"

"There are things I cannot be reconciled to in the country, Mrs. Gray. As you know, I like to go to church twice on Sunday, and would go if I lived near enough. Then I crave more society. Not that I do not esteem my country friends. But they are so far apart, and it takes so much time to see them all; they are not satisfied with a call, but I must go and take my sewing and stay to dinner or tea. Of course, they return the favor, and, when one has a large circle of friends, think of the time it takes to make and receive such visits, to say nothing of preparing meals for unexpected guests, for you know it is not thought worth while to send word beforehand. Then there are the children," continued Mrs. Delt, as she cut a buttonhole in a shirt-sleeve. "They are coming up shy and awkward, and are easily embarrassed in the presence of strangers."

"They are only modest and ladylike!" broke in Mrs. Gray. "Such girls make the best women, I've always observed."

"Perhaps. But country life is not restraining and refining enough. They have so little opportunity to see fashionable people that their ideas and, consequently, their manners, will not be up to the required standard of the day."

"If I had girls I'd rather they'd be a thousand years behind the 'standard of the day' than be the butterflies of fashion some girls are, and think of nothing but dress and beaux!" exclaimed Mrs. Gray.

"Certainly, my dear, certainly," assented the other lady, unruffled, "but, then, you'll admit there is a middle course. I never believed in going to extremes in anything." Mrs. Delt tore off another shirt band and resumed: "I have always wanted leisure for study and reading, and get so little. There is always something to be done in a farmhouse."

"There is anywhere, if one has a mind to be forever working," declared Mrs. Gray.

"Oh, it's different in town; it must be. There are no hired men, or harvesters

or threshers; no corn pickers, summer boarders or butchering days; no grain sacks to mend, or butter to make, or cheese to press, or overalls to patch. I tell you I have placed item for item, and the weight goes down on the farm side. I know I shall begin to live and grow young again when we are fairly off the farm."

The Delt's packed up March 1st and moved to town, and the farm was turned over to a family of Swedes. Mrs. Delt soon discovered that her carpets and furniture, which had been the pride of her country home, looked shabby and out of date in a fashionable city house. They could not afford to throw aside the old and buy new, and this was thorn number one in Mrs. Delt's side. Their clothing was found to be "countrified"—thorn number two—and Mrs. Delt gave herself no peace until the family wardrobe was overhauled and rejuvenated to the extent of her skill. By the time she was ready to enter upon the long-planned rest and course of solid reading, she was dull and weary, and the summer months were coming in hot and enervating.

Time passed. One day in the following February Mrs. Gray looked out and beheld a familiar figure coming up the path. A moment later the homely, honest face of Farmer Delt looked in at the kitchen door.

"So you are out at the farm?" said Mrs. Gray, after the greetings were said. "Did Mrs. Delt come with you?"

"Not this time. But she'll be along the next trip, I reckon," with a twinkle in his keen blue eyes.

"She isn't coming to stay, is she?" queried Mrs. Gray, her eyebrows lifting her spectacles well off her nose in their expression of surprise.

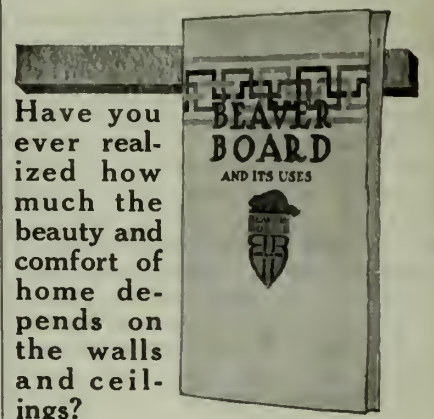
"You'll have a chance to ask her before this time next week, I guess," with a meaning look. "We're all packed up ready to move down as soon as the house is vacant. Mr. Bronsen has rented the Sole farm and will move over Monday."

"So Mrs. Delt does not like the change after all? Or does she come back reluctantly?"

"Not a bit of it! No, indeed! I had to come to suit her, for, though I always liked the farm, I liked the town well enough. But Maria's peculiar, you know that, Mrs. Gray. She got discontented on the farm, thinking she was having an awful hard time of it. You remember how she used to talk—no advantages, no time for visiting, or 'tending lectures, and such. She harped night and day until I couldn't stand it. I see that nothing but a change of air would cure her, so says I, 'We'll go to town and try it a year.' Well, it didn't turn out exactly as Maria had calculated."

"Of course, being a church member, she 'tended all the meetings, and that took two or three evenings a week. Then she joined the W. C. T. U. and the Ladies' Aid, and the Emerson Club, and the Economic Association, and one or two others, and it seemed like there wasn't no time for anything. I never saw a woman so drove. She was down for committee on one thing or 'nother the whole time until she didn't scarcely get time to eat her meals for trotting around soliciting contributions or making 'rangements about fairs and similar performances. She'd come home all tuckered out and crosser'n a bear, and that was something new for Maria. I learned to sew on buttons beautifully; had to, you see, her time was so took up."

"The hired help was the great trial to Maria. Them city girls have got the gall, I tell you. They'd flare up at most nothing and leave, maybe, with the house full of company. It worried Maria worse than doing her own work on the farm ever did. Another thing that bothered



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her was the neighbors' children. They used to come over in squads to visit our girls, and the way they'd tear 'round was a caution. If our girls happened to be away they'd set out on the porch waiting for 'em to come, and they'd look in the windows and flatten their noses and lips against the pane and tramp on the flower beds and holler until Maria'd have to hire 'em with cookies or candy to go home and stay there. Maria declared she never saw such ill-bred young ones, and said she could see our girls wa'n't improving any by such 'sociations.

"Then there was the agents for everything imaginable, and canvassers and peddlers and solicitors and beggars that made you wish you lived on a rock in the middle of the Pacific ocean—anywhere so't you could get a little peace of your existence. I really think Maria was rather popular, jedging by the afternoon callers she had. She's a pretty fair talker, Maria is, and gets 'quainted quick. She never pretended to do anything much after dinner, only receive calls and read a little, for she said she just had to keep up with current literature, so she could understand what people were talking about.

"It run along that way until a few weeks ago, and Maria'd got so thin and nervous I begun to get worried. She missed the cream and fruits and poultry and nice vegetables we had on the farm, for those things cost like the dickens in town, and we couldn't 'ford to have 'em as plenty as we used to. I could see Maria was getting homesick, but I didn't say anything. One day when I spoke 'bout renting the farm for another year, she says: 'Oh, Peter, I wish you wouldn't! Let's go back there and stay; I am tired of this kind of life. It isn't a bit as I expected. There is no quiet or rest for any of us; it's go, go, all the time, and I am sick for my cosy little sitting-room, where I can read or write all day with no one to interrupt. That girl in the kitchen nearly drives me wild; when she isn't breaking my china or cut glass, she is singing negro ditties at the top of her voice or whistling like a steam engine. Mrs. Glenn is getting to be a regular affliction, too, though I liked her so much at first; she runs in at all hours, and stays and stays, and hinders me so I cannot be civil to her, hardly. I'm glad we didn't sell the farm. I'll never envy city women again. But I'm not sorry we came to town, for I might have gone on being unhappy all my life. Now it will be different. I shall know how to appreciate my home and simple-hearted friends and country-trained domestics. Some folks can stand the wear and tear and noise of city life, but they're not like me. It seems to me if I can hear the old red rooster crow every morning, the way he used to, it will be sweeter music than any church bell.'"

Mrs. Gray was so absorbed in this bit of information that in a fit of absent-mindedness she emptied a cupful of milk into the fire, and laid a stick of stove wood in her china closet. At this point Mr. Peter Delt prepared to depart, with the remark: "You must come over and see Maria as soon as we get moved, Mrs. Gray. She'll be dreadful glad to see you, and pretty busy, too, till after housekeeping and settling."

"Yes. I'll come," she replied, as the door closed on his ample figure. "I don't envy them the job of getting the house rid of bedbugs," she whispered to herself. "I wonder what ails the fire, to sizzle so!"

"Don't you think that we should have a more elastic currency?" asked the Old Fogey.

"It is elastic enough," replied the Grouch. "Why don't they make it more adhesive?"—Cincinnati Enquirer.

"Don't Sidetrack Old People," says the Conductor.

"You ain't no older'n you feel. I tell yuh, people don't die o' old age. They get killed or else they get pushed off. I been watchin' 'em. They's too much fun goin' on for people to get tired enough to want to die. But young folks let old folks get lonesome too much. Don't you know an old person'd live longer if you treat 'em like they was young? Now Lizzie's mother acts about thirty years old, and she'll never see sixty again. Th' reason is Lizzie don't do nothin' to push 'er off. When they's any shoppin' to do, Lizzie just hollers out 'Come on, girls, get your goloshes on an' let's go see th' movies.' An' when they come home an' her maw says, 'Now, Lizzie, I'm goin' to make some o' them beaten biscuit your Uncle Henry's so fond of,' she don't holler out, 'Ah, go set down, mother dear, an' I'll get supper,' no, sir; she just says 'Fine, maw, you do that, an' I'll set the table an' wash th' dishes.'"

"That's what makes old people young. Take 'em right in on th' ground floor. Don't let 'em think they ain't it any more. How'd you like to have some grown-up kid that you'd raised without a bottle tell you to go sit down an' twiddle your thumbs? That's pushin' 'em off, that is. You might as well shove 'em off th' end o' the dock or chloroform 'em. 'Now, grandmaw, you fold your hands and set in the corner,' when she'd a heap rather go potterin' around fussin' about somethin'. I hate to see old people workin' 'emselves blind for some miserable grown-up children, but them kind live a blame sight longer'n them old ones you don't let do nothin'. They's more people rust out'n they do wear out. Be a good pal to 'em. You ain't got no cinch on stayin' young yourself. How'd you like to have that brat o' yourn holler at you, 'Go set down, gramp,' all th' time?'—Evening Post.

Mustn't Tell.

She held her sweet mouth up to him
And then remarked, to wit:
"You may print a kiss on my lips, dear Jim,
But you must not publish it."
—Boston Transcript.

Can't Tell Yet.

"Well, which one of the newly married pair is boss?"
"No one can tell."
"Why not?"
"Her mother is visiting them at present."—Baltimore American.

Biobbs—Your wife suffers from nervous prostration, doesn't she?

Slobbs—Well, sometimes I think she suffers and sometimes I think she positively enjoys it.—Philadelphia Record.

Church bells are tuned by clipping the edge until the proper note is obtained.

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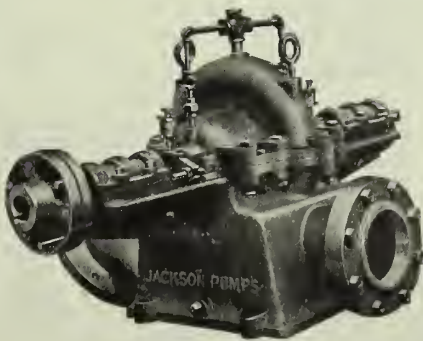
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171 So. First Street, San Jose, Cal.

"CALIFORNIA FRUITS AND HOW TO GROW THEM"

For sale by PACIFIC RURAL PRESS, 420 Market Street, San Francisco

THE MARKETS.

San Francisco, Jan. 29, 1913.
(Unless otherwise noted, quotations represent prices paid to the growers.)

Cereals.

WHEAT.

This market is still quiet, but prices are higher in all lines, and firm at the advance, owing to the firm attitude of holders in the North. Supplies are still being purchased there for shipment to this market, and there is also some business for export.

California Club	.....\$157½ @ 1.60
Sonora	..... Nominal
White Australian	..... Nominal
Northern Club	..... 1.57½ @ 1.60
Northern Bluestem	..... 1.67½ @ 1.72½
Northern Red	..... 1.62½ @ 1.70

BARLEY.

Spot feed is very quiet, and large buyers seem unwilling to pay the present prices. Values have not declined, however, as holders still maintain a firm attitude, and offerings are not heavy. Another export cargo left the first of the week.

Brewing and Shipping	...\$1.45 @ 1.50
Choice Feed, per ctn.	... 1.32½ @ 1.40
Common Feed	..... Nominal

OATS.

There is little demand for seed, and trading in feed is confined to narrow limits, buyers being reluctant to pay present prices. So far, however, there has been no quotable decline. Some large offerings of inferior black oats are noted, but receive little attention.

Red Feed	.....\$1.85 @ 1.90
Seed	..... 2.00 @ 2.10
Gray	..... Nominal
White	..... 1.60 @ 1.65
Black Seed	..... 2.20 @ 2.35

CORN.

No quotable change is noted, the market being quiet, with no very large offerings on the spot.

Cal. Yellow	..... Nominal
Eastern Yellow	.....\$1.50 @ 1.55
Eastern White	..... Nominal
Kaffir	..... 1.50 @ 1.55
Egyptian	..... 1.70

RYE.

Values stand nominally as before, but there is no demand at present, and offerings are very light.

Rye, per ctn.	...\$1.45 @ 1.50
---------------	------------------

BEANS.

There is no new feature to the market at present, the only change in prices being a slight advance in cranberry beans. The shipping demand continues fairly active in all lines, and most varieties are held pretty firmly at the prices quoted. There is now very little left in growers' hands, and supplies here are not considered burdensome.

Bayos, per ctn.	...\$3.25 @ 3.45
Blackeyes	..... 3.00 @ 3.25
Cranberry Beans	..... 4.70 @ 5.00
Horse Beans	..... 2.25 @ 2.35
Small Whites	..... 4.50 @ 4.65
Large Whites	..... 4.00 @ 4.35
Limas	..... 5.60
Pea	..... Nominal
Pink	..... 3.70 @ 3.90
Red Kidneys	..... 4.00 @ 4.25
Mexican Red	..... 4.00 @ 4.20

SEEDS.

Alfalfa is moving fairly well at present prices, and many other lines are in good demand. Considerable brown mustard is still held in the country. Canary is slightly higher.

Alfalfa	..... 16 @ 17 c
Broomcorn seed, per ton	...\$29.00 @ 30.00
Brown Mustard, per lb.	..... 3½ c
Canary	..... 4½ c
Hemp	..... 3½ @ 4 c
Millet	..... 2½ @ 3 c
Timothy	..... Nominal
Yellow Mustard	..... Nominal

FLOUR.

Prices on all lines are firmly held at the recent advance, and there is a good movement both locally and for export.

Cal. Family Extras	...\$5.60 @ 6.00
Bakers' Extras	..... 4.60 @ 5.20
Superfine	..... 3.90 @ 4.10
Oregon and Washington	..... 4.90

Hay and Feedstuffs.

HAY.

Arrivals in the local market continue light, but the demand also is confined to narrow limits, and it has been necessary to shade prices on many lines in order

to clean up the current offerings. Quotations show a general decline, especially on the better grades. Arrivals depend entirely on the local demand for a market, as there is practically nothing being shipped out for either export or coastwise trade, and this prevents any very heavy movement. There is some demand from southern California, but not enough to keep the market firm. Stocks are comparatively light in the larger hay districts, but many scattered lots, held back in fear of a shortage, are now being offered. The outlook for green feed tends to weaken the market, and with normal spring rains dealers look for no further advance.

No. 1 Wheat, or Wheat and

Oat	.....\$18.00 @ 20.00
do No. 2	..... 15.50 @ 18.00
Lower grades	..... 12.00 @ 14.50
Tame Oats	..... 15.00 @ 20.00
Wild Oats	..... 12.00 @ 16.50
Alfalfa	..... 10.50 @ 13.50
Stock Hay	..... 9.00 @ 10.50
Straw, per bale	..... 35 @ 70c

FEEDSTUFFS.

Cracked corn is weak, but not quotably lower. Rolled barley and oats have declined, finding a very light demand.

Alfalfa Meal, per ton	...\$18.50 @ 19.00
Bran, per ton	..... 25.00 @ 26.00
Oil-cake Meal	..... 40.00 @ 41.00
Cocoanut Cake or Meal	..... Nominal
Cracked Corn	..... 35.00 @ 36.00
Middlings	..... 35.00 @ 37.00
Roller Barley	..... 27.00 @ 28.00
Roller Oats	..... 36.00 @ 37.00
Shorts	..... 29.00 @ 30.00

Garden Truck.

VEGETABLES.

Onions remain quiet at the former prices. Southern vegetables are still scarce and high, and a number of novelties are appearing in small quantities. These include some Florida eggplant and string beans, and an occasional box of asparagus, the latter selling at 25 to 75c per pound, while the string beans are held at about 50c per pound. No difficulty is found in selling the small quantities offered. Rhubarb is again coming in, and brings fair prices, while choice Southern lettuce is much higher. Celery is now coming in more freely than anything else, and with a large surplus prices are much lower. Cauliflower and artichokes are still rather high, the main crop of the latter being late. Mushrooms are plentiful and lower.

Onions—

Yellow, ctn.	..... 50 @ 55c
Garlic, per lb.	..... 2 @ 3c
Tomatoes, per box	...\$1.40 @ 1.65
Cucumbers, per box	..... 2.00 @ 2.50
Cabbage, per ctn.	..... 50c
Carrots, per sack	..... 75c
Cauliflower, per doz.	..... 90c @ 1.00
Celery, crate	..... 1.75 @ 2.50
Rhubarb, lb.	..... 6 @ 7c
Mushrooms, lb.	..... 8 @ 20c
Artichokes, doz.	..... 75c @ 1.25
Sprouts, lb.	..... 6 @ 7½c
Green Onions, box	..... 50c
Green Peppers, lb.	..... 6 @ 8c
Lettuce, crate	..... 1.50 @ 2.00
Eggplant, lb.	..... 15c

POTATOES.

The local market is quiet, and prices for river stock show no improvement, although Salinas potatoes are a little stronger. More Oregon stock is coming in, and some lots are offered below the former quotations.

River Whites, ctn.	..... 50 @ 60c
Salinas, ctn.	...\$1.25 @ 1.50
Oregon, ctn.	..... 75c @ 1.00
Sweet Potatoes	..... 1.85 @ 2.00

Dairy Produce.

POULTRY.

Prices for hens show a sharp decline, as this week's large offerings are largely of this nature, and the supply is excessive. Several cars were carried over from the end of last week, and additional supplies are still coming from the East. Small broilers also are lower, but other lines are firmly maintained, arrivals from nearby points being light.

Large Broilers, per lb.	..... 25 @ 26 c
Small Broilers, per lb.	..... 25 @ 26 c
Fryers, per lb.	..... 20 @ 22 c
Hens, extra, per lb.	..... 15 @ 17 c
Hens, large, per lb.	..... 15 @ 16 c
Small Hens, per lb.	..... 16 @ 16 c
Old Roosters, per lb.	..... 10 @ 12 c
Young Roosters, per lb.	..... 18 @ 22 c
Squabs, per doz.	...\$3.00 @ 3.50
Geese, per pair	..... 1.50 @ 2.00
Ducks, doz.	..... 4.00 @ 6.00
Turkeys, dressed	..... 24 @ 25 c

BUTTER.

Arrivals at the moment are fairly large, but the local demand is improving, and prices are still advancing, extras being firm at 2c above the high point of last week.

Thurs.	Fri.	Sat.	Mon.	Tu.	Wed.
Extras	...36½	36½	37½	37½	38
Firsts	...35	35	35	35	35

EGGS.

Arrivals in the local market have been comparatively large, with a rapid increase in production, but up to a day or two ago prices were held at a high level. The firmness has been due to a scarcity at other markets, leading to large orders for shipment. This has now subsided, and prices are barely steady at a lower level.

Thurs.	Fri.	Sat.	Mon.	Tu.	Wed.
Extras	...30½	31	29	29	26½
Firsts	...28½	28½	27	27	25

Selected	..... 28½
Pullets	...28 28½ 27 27 25½ 26

CHEESE.

Flats and Y. A.'s remain at the last quotations, the latter being firm and the former steady. Monterey cheese is coming in more freely, and is easy at a slight decline.

Fancy California Flats, per lb.	..... 17 c
Firsts	..... 14 c
New Young Americas, fancy	..... 18 c
Monterey or Jack Cheese	..... 17 @ 18 c

Deciduous Fruits.

The demand for apples has picked up considerably in the last week, owing mainly to more favorable weather conditions, but the movement is not yet as large as dealers would like to see. Supplies in the local market are still uncomfortably large, with no shipping demand of much importance, and prices on the better grades show no improvement. Ordinary stock is held at a slight advance, but is about as cheap as it could be. Supplies of Winter Nelis pears are running low, and prices show an advance.

Apples: Fancy Red, box	..... 75c @ 1.25
Red Pears	..... 40 @ 60c
Bellefleur	..... 65c @ 1.00
Newtown Pippins	..... 50c @ 1.00
Greenings	..... 60 @ 75c
Common	..... 40 @ 60c
Pears: Winter Nelis	..... 2.00 @ 2.50

Dried Fruits.

Most lines of fruit are still rather quiet, but firmly held in view of the light supplies remaining on the Coast. Apples, however, continue very weak, with a tendency to shade prices, and find little demand anywhere. Prunes receive more interest than anything else. Quite a large shipment left for Europe this week, and inquiries are still being received from that quarter. Until recently the demand has been all for large sizes, but the scarcity of these and the marked difference in price is leading to a better movement of smaller prunes. Some of the larger sizes are now about cleaned up. Apricots and peaches are firm but quiet, and raisins find only a moderate demand in the Eastern markets. The New York Journal of Commerce says:

"The demand for spot goods in all varieties is strictly hand to mouth, and little, if any, buying interest is manifested in offerings for forward shipment from the Coast. However, sellers are not inclined to force business by the making of concessions below the quoted prices."

"In California prunes the supply of 40s on the spot is in small compass, and some holders will not accept less than 9c, though it is said to be still possible to buy from others at 8½c, and there is some reprocessed old stock said to be available at 8½c. Other sizes on the spot remain steady on the basis of previously quoted prices, though there is comparatively little demand for them."

"In peaches the situation shows no change. Spot stocks are going very slowly into consumption at the quoted prices, and no orders are being sent to the Coast so far as can be learned. However, the f. o. b. market is reported firm. Apricots being scarce on the Coast and in somewhat limited supply here, are firm, but in the absence of important demand, quotations are somewhat nominal."

"Raisins of all kinds seem to be neglected and prices are nominal, though according to some advices from the Coast the sweatbox market is firmer, due to reported renewal of buying interest on the part of packers."

(New crop.)

Evap. Apples, per lb.	..... 4½ @ 5 c
Apricots	..... 9 @ 10 c
Figs: White	..... 4½c

Black	..... 3 c
Calimyrna	..... 4 @ 5 c
Prunes: 4-size basis	..... 3 @ 3½c
(Premium: 1c for 40s-50s; 2c for 30s-40s.)	
Peaches	..... 4¼ @ 4½c
Pears	..... 4 @ 7 c
Raisins—	
Loose Muscatels in sweatbox	..... 2¼ @ 2½c
Thompson's Seedless	..... 4½c
Seedless Sultanas	..... 3 @ 3½c

Citrus Fruits.

Eastern auction markets may be said to be firm on good citrus fruit and weak on ordinary. At New York on Monday, Jan. 27th, navel oranges brought from \$1.80 to \$4 per box, average. At St. Louis the same day the highest price for oranges was \$2.30, and at Pittsburgh the range was from \$1.55 to \$2.55. Boston showed average prices from \$1.90 to \$3.60. Lemons are very firm and prices run from about \$5 to \$7.30.

Reports from southern California are that about 50% of the crop will be marketed. Orange county growers state that their oranges were not hurt as much as at first anticipated. Some groves were hardly frosted at all. Around Riverside and Redlands the damage seems to have been greater. Efforts are being made to have only sound fruit shipped East, and the action of the national pure food commission in condemning frosted fruit will have a strong tendency in keeping poor stuff from being shipped. The request made by the committee of growers to have an emergency freight rate placed into effect has been denied by the rail-ways.

The demand at San Francisco has improved materially this week, but navel oranges and the ordinary grades of tangerines are lower, supplies being larger than the market can easily absorb. Frosted oranges are very plentiful, and while sales to peddlers have been fairly large, the market does not take such fruit very readily. Lemons and grapefruit are very firm at last week's prices, and Mexican limes are very scarce, some having been sold lately as high as \$10. This has led to a strong demand for the smallest sizes of lemons, which have been sold up to \$6.50.

Oranges, per box—	
Navels, good to fancy	...\$1.25 @ 3.00
Frosted	..... 50c @ 1.00
Tangerines	..... 1.00 @ 2.50
Grapefruit, seedless	..... 2.50 @ 4.50
Lemons: Fancy	..... 6.50 @ 7.00
Choice	..... 5.00 @ 5.50
Limes	..... Nominal

Nuts, Honey, Hops, Etc.

NUTS.

Supplies are limited, and while the demand at present is not especially heavy, everything is held at firm prices. Quotations represent jobbing values, stocks in the country being cleaned up.

Almonds—	
Nonpareils	..... 17½c
I X L	..... 16½c
Ne Plus Ultra	..... 15½c
Drakes	..... 12½c
Languedoc	..... 11½c
Hardshells	..... 8 c
Walnuts, 1912 crop—	
Softshell No. 1	..... 16 @ 16½c
Hardshell No. 1	..... 15 @ 15½c
No. 2	..... 10½c
Budded	..... 17 c

HONEY.

Some holders in southern California note a demand for shipment, and report better prices, but the local market shows little feature. Supplies, though not excessive, are ample for current needs, and there is not much demand here at this season.

Comb, white	..... 12½ @ 14½c
Amber	..... 10 @ 12 c
Dark	..... 9 @ 10 c
Extracted, white	..... 8 @ 9 c
Amber	..... 6 @ 6½c
Off Grades	..... 5 @ 6 c

BEE SWAX.

Local dealers report no particular demand for shipment, and the requirements here are limited. Supplies are ample for all needs, and values stand nominally as for some time past.

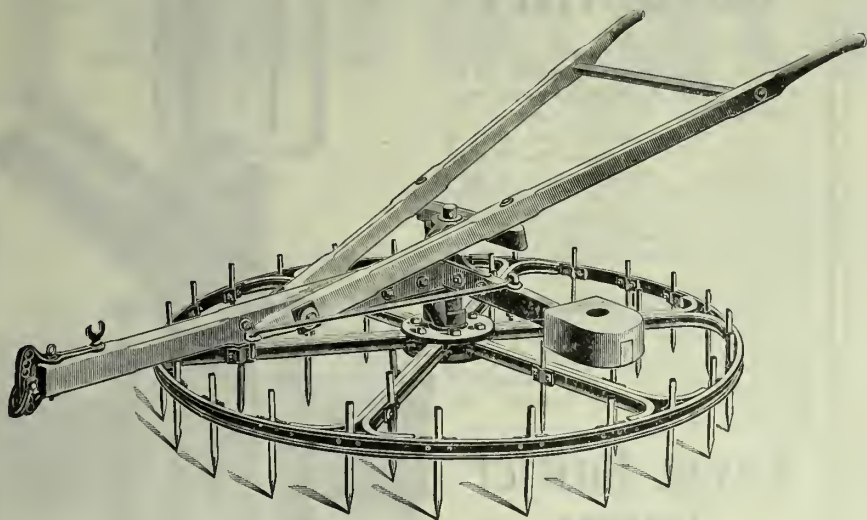
Light	..... 29 @ 30 c
Dark	..... 25 @ 26 c

HOPS.

There is still considerable demand, with inquiries for export, and supplies in the country are well cleaned up. Prices are firmly held as last quoted.

1912 crop 12½ @ 20 c
-----------	------------------

BENICIA ROTARY HARROWS



CHANNEL FRAME

The cut herewith shows the **Benicia Rotary Harrow** with latest improved channel frame. This harrow will roll under the spurs and close to trees and vines without injuring them. It can be made to run either way by swinging the weight arm around and the slow side should always go nearest the vine. It breaks up the clods, thoroughly pulverizes the soil and cleans itself of all trash at each revolution. The handles are long and the operator can easily hold the harrow to or from the rows.

The Channel Frame Harrow has all the good points of the ordinary pipe frame harrow, and in view of its construction is much stronger and opportunity is given for the use of the ordinary square harrow teeth. These are clamped to the channel frame and admit of being lowered as they wear. There is no obstruction on the circular frame of the harrow which would injure the trees or vines against which the harrow might roll.

Size, ft.	Frame.	Wt., lbs.	Price.
4	Pipe	193	\$13.50
4½	Pipe	196	14.40
5	Pipe	200	15.75
4½	Channel	200	16.20
5	Channel	215	17.55

Benicia implements are made in California and are backed with a real guarantee.

BENICIA IRON WORKS, Manufacturers

Factory: Benicia, Cal.

451 Brannan St., San Francisco, Cal.

WOOL.

Values are entirely nominal, as there is no trading in the country at present, and buyers are taking no interest in the spring clip in advance of the shearing season. Some wool is being shipped East from local warehouses, but Eastern buyers are not paying much attention to local offerings.

Fall Clip:

Northern and free Mendocino	12	@14	c
Lambs	9	@13	c
San Joaquin and Southern	6	@10	c
Mohair	15	@28	c

HORSES.

There has been considerable buying of a miscellaneous nature during the last week, and some large inquiries are coming out. The principal feature at present is a revival of the country demand, which is mostly for mares. Dealers look for a very active market during the spring, and look for a higher range of prices. Several large lots of desirable stock are coming in this week, and for the most part find ready sale.

Heavy drafters, 1700 lbs. and over	\$300@350
Light Drafters, 1500 to 1650	250@285
Chunks, 1350 to 1500 lbs.	200@250
Wagon Horses, 1250 to 1350	180@225
Delivery Horses, 1050 to 1250	125@150
Desirable Farm Mares	100@125

MULES.

1200 lbs.	\$200@250
900 lbs.	75@125
1100 lbs.	150@200
1000 lbs.	125@175

Live Stock.

Bulls and stags show a sharp advance, following the tendency in other lines of beef stock. Sheep are also higher, and hogs are firm, with lighter offerings. Dressed steers have again advanced.

Steers: No. 1	7	@ 7¼c
No. 2	6¼	@ 6¾c
Cows and Heifers: No. 1	6	@ 6¼c
No. 2	5¼	@ 5¾c
Bulls and Stags	2½	@ 4½c
Calves: Light	7¼	c
Medium	6¾	c
Heavy	5	@ 6 c
Hogs: Grain-fed, heavy	6¾	@ 7 c

150 to 250 lbs.	7	@ 7¼c
100 to 150 lbs.	6¾	@ 7 c
Prime Wethers	5¼	@ 5½c
Ewes	4¼	@ 4½c
Lambs	6	@ 6¼c

DRESSED MEATS.

Steers	11½	@ 11¾c
Cows	10½	@ 11 c
Heifers	11	c
Veal, large	10	@ 11 c
Small	12	@ 13 c
Mutton: Wethers	10½	@ 11 c
Ewes	10	@ 10½c
Spring Lambs	13	@ 13½c
Hogs, dressed	11	@ 12 c

HIDES.

The continued dullness has caused an easier feeling in regard to prices, and both salted and dry hides show a general decline of ½c.

Heavy Steers, over 56 lbs.	14	c
Medium	13½	c
Light Steers, under 48 lbs.	12½	@ 13½c
Heavy Cows, over 50 lbs.	12½	@ 13½c
Light Cows, 30 to 50 lbs.	12	c
Kip	14½	@ 15½c
Veal	17½	@ 18½c
Calf	17½	@ 18½c
Dry Hides	23	@ 24 c
Dry Kip, 10 to 15	24	@ 25 c
Dry Veal, 5 to 10	29	c
Dry Calf, 7 down	29	c
Horse Hides—		
Salt: Large	\$2.25	
Medium	1.75	
Small	75c	
Colts	25@ 50c	
Dry	75c@ 2.00	
Sheep Skins—		
Long Wools	\$ 0.85@ 1.25	
Medium Wool, 6 to 9 mos.	60@ 90c	
Short Wool, 3 to 6 mos.	40@ 60c	
Lambs	35@ 70c	

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GROUND SQUIRRELS, GOPHERS, also
BORERS, ROOT APHIS, etc., on Fruit
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Office: 624 California St., San Francisco.

PUBLISHER'S DEPARTMENT.

THOSE ETTERSBERG BERRY PLANTS

We are receiving many letters and some personal calls asking why the strawberry plants were not received. As we cannot answer these letters personally, we trust this announcement will be taken in lieu of a letter. In the first place, many of those who will get the plants evidently did not read the offer carefully. In our announcement we stated that the offer was good only until January 15th, and at that time Mr. Etter would send out the plants. As quickly as possible after the 15th, we made up lists of names and sent them by parcels post to Brice land. In the meantime Mr. Etter had been called to Ferndale to the bedside of his mother, who died on January 17th. In a letter written to us since, Mr. Etter states that he would go home as quickly as possible and attend to getting out the plants. When the further facts are taken into consideration that on the Mattole river rain has fallen so far this season, when measured in feet is greater than the number of inches in most parts of the State, it will be seen that Mr. Etter has troubles of his own in getting the plants from the ground, packing them, and then in inducing the United States mail carrier to ford streams and travel slippery mountain roads to deliver the packages to the nearest railway. The job that Mr. Etter has on hand right now is a big one, and we trust that those who expect the plants will be patient—and they will receive the berry plants in due time.

One other point we wish to make, and that is, all plants will be sent out at

this time. Some readers requested that they be held for better convenience of the recipients. As these plants are a free gift, in reason Mr. Etter cannot be expected to supply them except upon his own terms.

Have you noticed the advertisement of C. Henry Smith, importer of nitrate of lime? This is a superior fertilizer because of the lime base. You pay only for the nitrogen and get the lime free. Mr. Smith sends out a folder explaining the advantages of nitrate of lime and giving opinions of such experts as A. D. Hall, director of the Rochamsted Experimental Station, and James Hendrick, chemist of the Highland and Agricultural Society of Stockton, as well as testimonials from well known fruit-growers. Send for it.

PRACTICAL ANIMAL HUSBANDRY BOOK.

"Beginnings in Animal Husbandry," by Charles S. Plumb, Professor of Animal Husbandry, College of Agriculture of Ohio State University.

A new book of unusual merit treating upon the subject of live stock from a thoroughly practical point of view, discussing breeds, judging, heredity, selection, pedigrees, composition of plants and animals, influence of foods, feeding standards, rations, feeds and their value, care of farm animals, types and breeds of poultry, eggs and incubation, feeding, etc. Profusely illustrated; contains 392 pages, 5½ by 7 inches; published by Webb Publishing Co., St. Paul, Minn. As we do not know the price at which the book sells, we would suggest that anyone interested in securing a copy should write directly to the publishers at St. Paul.

Ship your **POULTRY, EGGS, HONEY, DRIED FRUIT, RAISINS, NUTS, DRESSED CALVES**, and Produce of all kinds to the old Reliable firm of **W. C. PRICE & CO., 211, 213, 215 Clay St., San Francisco, Cal.**

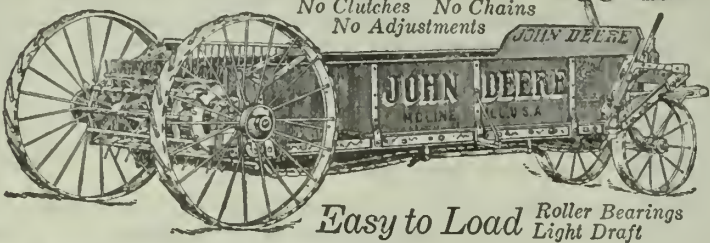
Highest market prices and immediate cash returns guaranteed. Liberal advance made on all shipments. Consignments and correspondence solicited. Write us before shipping elsewhere.

John Deere Spreader

The Spreader with the Beater on the Axle

The Simplest Spreader Made

No Clutches No Chains
No Adjustments



Easy to Load Roller Bearings
Light Draft

Decided Improvement in
Spreader Construction

Up to this time every spreader on the market has been constructed along the same general lines.

The John Deere Spreader, however, is different. It is entirely new and there is nothing else like it on the market.

All the working parts are mounted on the main axle. There are no strains and stresses on the sides or frame and no clutches or chains to give trouble.

The John Deere Spreader is low down, easy to load, very simple, and always ready for business. It cannot get out of order.

Beater on Axle

All the working parts on the John Deere Spreader are mounted on the rear axle. There are no independent studs or shafts to give trouble, nor chains or sets of gears to get out of order. All strains and stresses are borne by the main axle and are not transmitted to the side of the box or the frame of the spreader.

Power to drive the beater is taken from the rear axle and operates through a planetary transmission (similar to that used on automobiles) mounted on the rear axle within the beater.

Light Draft—Few Parts

There are at least two reasons why the John Deere Spreader is the lightest draft spreader made. One is that it has four sets of roller bearings; two in the front wheels and two on the main axle. They reduce the draft materially.

Another reason is that the John Deere Spreader has so few parts. It has about 150 less types of castings than the simplest spreader heretofore made. It is only natural that the fewer parts a machine has, the easier it will operate.

When the John Deere Spreader is out of gear, it is simply a wagon.

Easy to Load

The first three feet manure is lifted with an ordinary spreader are easiest of all. The real hard work is from this height to the top of the ordinary spreader.

The John Deere Spreader is low down. It is only necessary to lift each forkful

Even if You Don't Need a New Spreader Now, Come in and See It.

JOHN DEERE PLOW CO., SAN FRANCISCO

three feet. Thus, the hard work of loading a manure spreader is done away with. Besides, the person doing the loading can see inside the spreader at all times. Each forkful is placed exactly where it is needed.



Easy to Load

No Adjustments

On the John Deere Spreader no adjustments are necessary. On the simplest spreader heretofore made, it was always necessary to make from ten to twenty adjustments before the machine would work at all.

John Deere Spreader is thrown in gear by moving a heavy dog back until it engages a stop at the rear of the machine. No clutch used.

Out of Gear

Positive Non-Racing Apron

By the use of a very simple locking device inside the ratchet feed, the apron is positively locked against racing when spreading up hill or over exceedingly rough ground. The result is that when spreading with the John Deere Spreader the manure is always spread evenly. This is not possible on any other ratchet feed spreader made.

Change of Feed

Change of feed is accomplished by a double shoe which is moved from the seat. This shoe determines the number of teeth the ratchets engage at each stroke. The John Deere Spreader has a variation of from five to twenty-five loads to the acre.

Substantial Steel Frame, Like the Modern Railway Bridge

Both the side sills in the John Deere Spreader are of high carbon channel steel with the channels turned to the inside. Into these hollows are fitted four large wooden cross sills. Being bolted, these cross sills can be kept tight, insuring rigidity and alignment of frame at all times.



Built Like a Steel Bridge

Pump — durability

"THE FIRST COST SHOULD NEVER DETERMINE THE PURCHASE OF A LABOR-SAVING MACHINE. The ultimate cost is the thing to be considered; and that is the sum of first cost plus the cost of maintenance. There comes a time sooner or later when the ultimate cost is twice or thrice or many times the first cost. Just when that time will come depends upon the wearing power of the tool. If there is anywhere that quality counts, it is in a machine tool. For 'Quality' is that element in a machine which keeps the ultimate cost down by keeping down the cost of maintenance. It pays to buy 'Quality' machines."

Layne-Bowler Pumps

always give satisfaction because they always prove cheapest in the long run. Our many follow-up orders from people who have used our pump before prove this.

There is no complex mechanism—no going down into the pit to tighten bolts, etc. Any adjustments are made at the pump-head. We have pumps now running in many parts of the country which have never had a dollar's worth of repairs.

If economy and money-saving is any object to you, you owe it to yourself to investigate the Layne-Bowler Pump.

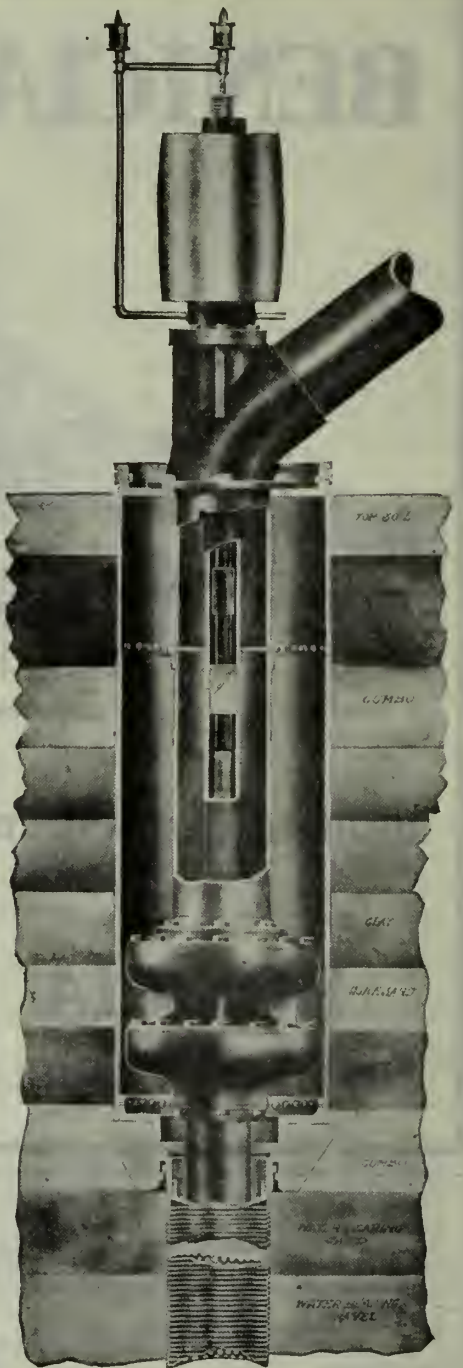
And, remember, that the Layne-Bowler Pump is a pump that always runs when you want it to.

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Layne & Bowler CORPORATION

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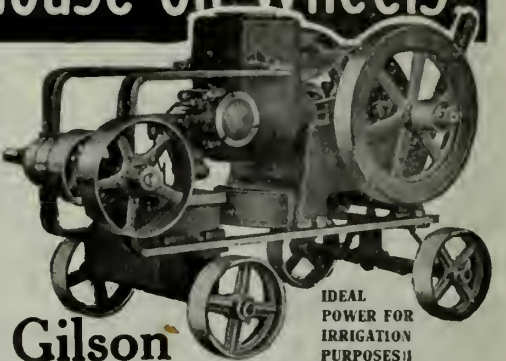
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Runs the whole farm. Goes like sixty—sells like sixty—has sixty speeds. 1 3/4 h. p.—also 3 h. p. and 6 h. p. Engines up to 27 h. p.

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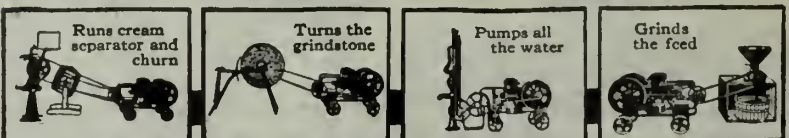
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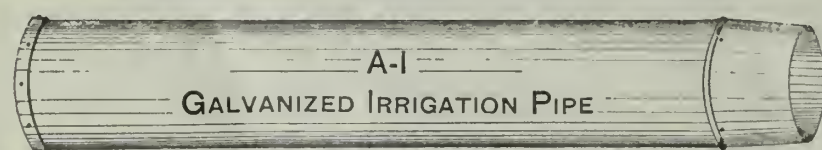
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THE PACIFIC RURAL PRESS

Vol. LXXXV. No. 6.

SAN FRANCISCO, SATURDAY, FEBRUARY 8, 1913.

Forty-Third Year.

THE WASTE OF MILK SOLIDS.

[BY OUR ASSOCIATE EDITOR]

Dairying, so far as the use of milk and milk products is concerned, is conducted in California on a very wasteful and extravagant basis. It is run on the pioneer basis, whereby most valuable foods in the milk are almost thrown away because more financial profit can be secured from saving only one kind of food, the butter-fat. In other words, in California the main profit in dairying comes from the production of butter-fat, and the skim-milk is considered a by-product of very little value, to be fed to the hogs and calves.

This condition will not endure indefinitely; in fact, the movement

of milk if cheese were manufactured, is practically the same as the total amount of protein and fat that would be digested from 10 pounds of sirloin steak. In other words, the saving of food from every 100 pounds of milk by the manufacture of cheese would equal the food in 10 pounds of the best kind of beef. It would be clear saving, too, as the fat in butter would nearly all be retained in the cheese. The 10 pounds of sirloin would retail for about \$1.75. The food value of the casein saved from the 100 pounds of milk would thus be about \$1.75 by the time it got to the ultimate consumer. In comparison with this amount, the 12 cents or so that the skim-milk from 100 pounds of whole milk would bring is hardly to be considered.

Coming Need.—There is a very big need for this saving just at hand. Within the last decade the United States has changed from a



A Fine Herd of Grade Holstein Cattle in San Joaquin Valley.

the other way has already started. In all the long-inhabited countries where animals are kept for milking purposes, cheese is a staple article of diet, just as meat is in America. No other food can so well take the place of meat, both in the appetite and in the demands that the system makes for nourishment. That cheese also is usually made from skimmed or partly skimmed milk in the old countries; it is not full cream cheese like that made in America.

Food Value of Milk.—The waste of food by valuing only the fat in milk is easily seen. In 100 pounds of average milk there will be about 13 pounds of solids, only four pounds of which is fat, the other nine pounds now being used mainly for hog feed. Of that 9 pounds, $3\frac{1}{4}$ pounds is casein, a muscle-building food that would be retained in the manufacture of cheese. The remainder of the food from the milk would still be available for hog feed, and would combine with alfalfa better than the skim-milk itself, though naturally it would not be as nourishing or as valuable a food as the skim-milk.

The $3\frac{1}{4}$ pounds of casein that would be recovered from 100 pounds

meat-exporting nation to one not having enough for herself, and the condition is getting more pronounced all the time. This will cause higher prices to justify the saving of milk solids now wasted, and the physical necessity of the people for a good meat substitute will also demand that this saving be made. It is just the same causes that have made cheese a standard article of food in so many European and Asiatic countries.

Cheese corresponds in composition fairly well with the meat which it may be a substitute for as far as the kinds of nourishment it contains is concerned. There is, however, a large amount of waste matter in meat which there is not in cheese, and cheese is richer. Roughly, there are in 100 pounds of cream cheese nearly 70 pounds of actual nutrients; in sirloin, but 32.2 pounds, less than half as much; in loin of mutton, about 41 pounds of nutrients; and so on for the different kinds of meat. The cheese has 28 and over pounds of digestible protein, against 15 pounds for sirloin of beef, leg of mutton, etc. The

(Continued on Page 177.)

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FRANK HONEYWELL - - - - - Manager
W. H. SCHRADER - - - - - Adv. Manager
D. J. WHITNEY - - - - - Associate Editor

CALIFORNIA WEATHER RECORD.

The following rainfall and temperature record is furnished the PACIFIC RURAL PRESS by the United States Department of Agriculture, Weather Bureau, at San Francisco, for the week ending at 5 p.m., February 5, 1913.

Stations.	Rainfall Data.			Temperature Data.	
	Past Week.	Seasonal to Date	Normal to Date.	Maximum.	Minimum.
Eureka	00	24.75	25.66	60	38
Red Bluff	00	13.17	14.49	72	34
Sacramento	00	5.32	11.28	66	42
San Francisco ..	00	8.82	13.15	68	44
San Jose	00	3.91	9.42	70	34
Fresno	00	2.52	5.38	66	40
Independence	00	.92	5.27	62	20
San Luis Obispo ..	00	4.51	11.22	72	36
Los Angeles	00	2.90	8.55	66	42
San Diego	00	2.88	5.49	60	44

The Week.

What we need now is rain, and as we write on Wednesday, both the sky and the Weather Bureau are hanging out signs that it will come before this issue reaches the reader. It will be a great blessing surely. Reverting to the announcement made last week that a distinguished meteorologist was ready to undertake long-distance forecasting if money enough were furnished for the necessary outfit, we have now to point with pride to the fact that a California observer is disposed to indulge in it without help from Mr. Carnegie. On Sunday last Father Ricard of the University of Santa Clara Observatory gave out a statement claiming that his 42-day forecast given out in December came very nearly true in January, and he issues another as follows:

The forecast for February and March includes the following stormy periods: February 3d to 7th, 10th to 13th, 16th to 20th, 22nd to 28th; and February 5th to 9th, 11th to 15th, 18th to 24th, 25th to 28th.

March 1st to 6th, 8th to 12th, 15th to 18th, 21st to 24th; and March 4th to 7th, 9th to 14th, 16th to 21st, 23rd to 28th.

The first set is most likely to affect the south. The second is most likely to run east directly. There will again be a deficiency of rain. Farmers should lose no time in planting their crops."

No suggestion of the basis for this prediction is given, so far as we know. It looks a little like a deduction from the records of the past, for it seems to provide storms all through the rainy months of February and March, which is the way it ought to be. We do not seem to be fully able to understand the prophecies. That there will be "again a deficiency of rain" with so many storms aloof seems somewhat contradictory, and the other admonition is also confusing: that there being an imminent deficiency, "farmers should lose no time in planting their crops." From one point of view it would be right, perhaps, viz.: early planting would make quick use of water, for crops not

injured by frost. But, on the other hand, it is already too late to plant other crops, if spring rains are to be shy, and it might be better to save seed and labor. On the whole, the prophecy seems rather like a Delphic utterance and dependent largely on the subjective condition of the consultant. In fact, we are not yet fully convinced of the value of long-distance forecasting on any basis yet disclosed: if anyone wishes us to make one it would be this: "Trust in the Lord and keep busy."

The Battle of the Sugars.

It is a great deal sweeter thing, on the whole, but the battle of the sugars is none the less tempestuous, and it is being promoted by the financial interests, as wars usually are. It is indeed a fratricidal war, for all the sugars are very closely related; nature can by slipping over a few atoms make one kind of sugar or another. The chemists have been for generations trying to work the same sleight of hand, but, if we are not mistaken, nature still holds her secret of making what is understood as "cane sugar," and she puts it through where she likes. On the other hand, what is called "grape sugar" or glucose is a poor relation of cane sugar, and nature has turned it aloof to be presented by manufacturing chemists in almost any way which promises profit. Hence there arises between these two sugars the old battle between the good and the true and the imitators thereof, which breaks out everywhere among created things, both material and spiritual. One phase of this conflict is preached about by one of our city contemporaries as follows:

"Advocates of the use of glucose say that it is no more of an adulterant than cane sugar, maple crust or salt would be, and Dr. Wiley has testified that its food value is high, but the operation of the pure-food law is tending to prejudice people against its use by giving the impression that it is harmful. When this accusation is brought against the department it defends itself by saying that it does not misrepresent the facts, that it merely insists that glucose shall not be sold as sugar. Presently it will become so particular that it will require the producers of beet sugar to indicate its origin. If that is done, a great industry will suffer, the price of sugar will be increased and a law designed for the benefit of the people will work them an injury."

The first two sentences of this paragraph are exactly true and the position of the Department of Agriculture is rational. Manufactured glucose properly made of good materials is nutritious and wholesome, but it must not masquerade as a natural product: for example, it must not be labeled honey—because it then becomes a fraud and a deceit. As to the closing sentences of the paragraph quoted, they involve an error and apprehension, and, if they were written by a glucose manufacturer, we should call it a threat or menace. Sugar from the sugar cane and from the beet are identical—both are what has been known for generations as "cane sugar." Therefore if the department should do as the writer threatens, it would be an altogether unnecessary and useless thing. It might injure the beet-sugar growers and makers in this country for a time, because so many Americans cherish an old prejudice which careful experimentation has shown to be unwarranted. But it could not endure long because the American cane-sugar product from the beet is vastly larger than the product from the cane, and because the world's sugar product comes from the beet and the cane in a similar ratio. As stated, beet sugar and cane sugar are "cane sugar"; glucose is not "cane sugar," and to sell it as such is a fraud and a deception. There is

no battle, then, between these sugars except as financial interests conjure it up, as aforesaid.

Are the Farmers Looking to It?

We have kept such track as we could of legislative propositions at Sacramento, and we have been electrified with various elaborate plans for overturning nearly everything that exists in public affairs in the search for a better way. If, however, there has been a joint resolution calling upon the Almighty to re-create the universe, we must have carelessly overlooked it. Another thing which we have not seen is indication that the farming interests are doing something to release themselves from the present imposition of accident liability, which they have protested against in our columns quite amply during the last year. As it now stands, the farming employer either takes the chances of losing his ranch, or he purchases insurance protection at a rate which may practically double his taxes—and he cannot shift either burden as manufacturing employers can readily do. Perhaps representatives of the farming interests are doing something, but it has not broken out in the public eye, in the way "protectors" of other industries display their wares. There must be something clear and powerful done if farmers do not desire to be swept along in the current of legislation for other interests, as they have been. The break-up of the legislature for thirty days' consultation with those whom they represent is now on, and every local farming organization should assemble its representatives for instruction on this point. Discussion and resolutions are good things, but to accomplish a thing you have to get legislators by the neck, and that is what other industries are now doing.

Keep It Off the Farm!

For the land's sake, has not the farm suffered enough as the reputed refuge for any old failure, of man or man's notions, to secure immunity from future inflictions of this kind? If there are never-do-wells, in men or institutions, let the State buy a farm for them! If they never have paid their way, get them a farm: they will be able to live high and pay for the farm! Start them with less than nothing (that is, with a reputation below zero) and the farm will boost them to the boiling point of prosperity! Isn't that foolishness enough? No: because since the dawn of history the farm has been selected as the place where all the flossy notions of human progress would work out as their projectors desire. Some sentimental person has declared that the human race ever longs for return to its birthplace. Would, indeed, that Adam had worked more successfully his side-line as a ladies' tailor, for then modern geese might find a different flocking-place. But see who's here now to make the farm ridiculous! We read that a bill has gone to Sacramento "providing a plan for mating in marriage 25 selected couples on a State farm, where they and their offspring can be reared under idyllic conditions and the eyes of experts." It is therefore provided that—

Twenty-five thousand dollars is to be expended in buying 1000 acres of land in a high and salubrious location for a mating farm. Then \$50,000 is to be spent on fitting up this farm for agricultural and horticultural work and in the purchase of books, magazines and periodicals interesting to students of eugenics. And when this haven is ready, 25 males and 25 females are to be selected for mating there. These fifty novitiates shall enter on a solemn agreement to serve as experimental wards of the State for 25 years. Under the direction of the Board of Health, they are to be selected and married, and the children are to be cared for at State expense.

It is not our particular function to point out what a travesty the scheme is upon the experience of mankind as embodied in what we call "human nature": nor to denounce it as an outrage upon the highest conceptions of the human race, and of its relations to things infinite. All we have to do with are its agricultural reflections. Advocates of eugenics say sometimes that they only propose to do for the human race what farmers have demonstrated to be feasible in the breeding of live stock. We reject the implied compliment. Any breeder who stocked up his farm in the way proposed would go into bankruptcy or into a lunatic asylum in less than a year. Turkish or Mormon methods are better agriculture than this eugenic scheme, and from any other view it is an abomination, as they are. It is not helped by its concession to conventionality: it is made more ridiculous thereby. Keep it off the farm! We have had already too many congeries of cranks bringing discredit to its honorable name.

How Long Is Irrigation?

Speaking about Adam reminds us of a ruction which has broken out between the bureaus at Washington about the durability of irrigation. It seems that Dr. Galloway, of the Department of Agriculture, is credited with saying, before the House Committee on Expenditures in the Agricultural Department, that his department hoped to put irrigated farming upon a firm basis for the future. The danger lies not only in the alkali in the soils of irrigated lands, which washes down into other land, but also in what the experts term as the "wearing out" produced by saturation. "I will go so far as to say, and it may be somewhat startling," Dr. Galloway said to the committee, "that so far as I know there never has been any long-continued irrigation in a semi-arid climate anywhere in the world."

Now this was rather an unfortunate statement, in a way, because the Department of the Interior has spent something like \$74,000,000 in watering the arid lands, and it proposes to have them in its own way and does not want any "sass" from the Department of Agriculture, either. And so Secretary Fisher of the Department of the Interior writes to Secretary Wilson of the Department of Agriculture suggesting that he sit on his young man Galloway and, for the sake of peace, to prepare an official statement to show "the necessity of irrigation, its growth in the United States, and the practical results, not only in crop production, but in building up a desirable citizenship in the remote portions of the West."

Secretary Wilson, having apparently spanked Galloway, responds to his cabinet colleague that "up to date there are no developments which should occasion alarm for the permanent future of the land reclaimed or for the continued prosperity of the people who have settled upon it."

But what has this to do with Adam? Oh, yes: Adam had an irrigated ranch on the Euphrates and he and his descendants followed irrigation until Noah took to rainfall and did so ill that the country has been irrigated ever since. And now a great German syndicate is spending millions in restoring the prehistoric irrigation system in Mesopotamia. We do not know what Dr. Galloway means by "long-continued." He may think in aeons and not in epochs. However, we think our reference to Adam will get his goat.

What to Do for Agriculture.

There does not seem to be any doubt in the public mind that much should be done for the promotion of agriculture. The people are get-

ting hungry enough to agree solidly to that: the only question seems to be, how much can be wisely done at this time? By a majority of one vote, after several days' debate in the United States Senate, the Page vocational educational bill authorizing maximum appropriations of over \$14,000,000 for agricultural and trade educational work was passed. Its purpose is to establish with United States funds courses of instruction in trades and industries, home economics, and agriculture in the various public schools of secondary grade; provide for State agricultural schools, testing and plant-breeding stations, the education of teachers, and general extension. The bill which was beaten by one vote is the Smith-Lever bill, and this measure appropriates at once a maximum sum of approximately \$3,500,000 for the establishment of extension departments in the State-agricultural colleges through which instruction in agriculture and home economics would be carried into the homes of the farmers. Thus it appears that both bills contemplate the same public service, but the Senate proposes to do it more widely and rapidly, and to spend four times as much money at once. Another question is involved, viz.: that the United States endow the lower schools of the different States, and some hold that this "would commit the Government to principles of local educational work which might result in an endless demand for Federal assistance for local schools." We are not sure that we are scared about that—so long as Uncle Sam sticks to industrial instruction we cannot see that his overlordship is dangerous. The more important question, it seems to us, is how much money can be spent to advantage and paid to qualified teachers and not to job-chasers? The agricultural colleges generally favor the measure which passed the House, because they believe they can successfully inaugurate the smaller project and feed it as it grows.

Queries and Replies.

Querists must submit full names and addresses.

Draining a Wet Spot.

To the Editor: In my apricot orchard I have a spot of about an acre that in a wet winter becomes very miry and as a rule is wet up to July, and in May and June especially. As I must tile a long distance to get to the road, I concluded if I put in a ditch 2½ feet deep and filled in with small stones for a foot or a foot and a half it would not drain nearly as well as a four-inch tile. In a year or two I can afford to buy an eight-inch tile, but this year I am "sailing close-reefed to weather through." Would you leave the ditch open and put the stones in about April, or now?—M. B., Nordhoff.

The objection to a drain made of small stones is that the spaces between the stones are often quickly filled with soil and the drain no longer operates. However, it will work for a time, and such drains were formerly largely employed in Eastern situations when cash was scant and stones abundant. It would be a question whether it would not pay better to use open drains until you are able to put in the tiling. They would, however, interfere considerably with cultivation, and therefore it might be better to proceed as you propose, digging the ditch bottom to a depth of not less than three or three and a half feet, then put in the stones deep enough so that they would not be interfered with by plowing. If you have flat stones you can make quite a water-way with them and fill in with small stones above it. The stones can be put in later, of course, while time is available during the dry season, and the open

drains will only need to interfere with cultivation during the first year. Be sure your ditch is down grade at every point, and absolutely no sags in it. This will make a stone drain work faster and longer.

Removing Root-Knots.

To the Editor: Can you tell me what to do for black knot on peach trees? The trees that were affected bore well, but made a poor growth.—R. D., Geyserville.

There was a full discourse on the nature and occurrence of the trouble by C. O. Smith of the University Plant Disease Laboratory, in the PACIFIC RURAL PRESS of November 30. As for treatment, it seems to be clear that if the trees are not too large, the knots can be removed with a chisel and the wound painted with the bordeaux mixture to the advantage of the tree; but if the trees are old and the knots so large that their removal would almost girdle the tree, it is a question whether it is not better, on the whole, to take out the trees and plant new ones. It really depends upon the condition of the trees whether it is worth while to remove the knots or not. If the tree has the start of the knot, it will be helped by removal; if the knot has the start of the tree so that it is unthrifty, there is small chance of reinvigorating by removing the knots. This is apparently true, both with young and old trees. Old trees are sometimes badly knotted and still productive and profitable.

Borers in Walnuts.

To the Editor: Last year I planted out 75 Franquettes grafted on California Black roots, and among them I have five or six that have something on them that the fruit men around here call borers. On the side of the trunks of the trees, which are about three-quarters of an inch in diameter, close to the ground, there is a black or blue spot about the size of a dime; the bark of this space is dead, and on scraping this away there is under it, we find, a dry dust, such as is found in worm-eaten wood, and I am confident that something of this nature is working in these trees. Will you tell me what to do to destroy the pests, and how to treat the affected part after they have been destroyed?—S. F., Placerville.

It is possible from your description that you have allowed your trees to become sunburned and that borers have made entrance to the wood, as is usually the case. Your trees should have been thoroughly whitewashed immediately after planting, so that the heat would be reflected and not absorbed by the bark. When this is done borers are avoided. Take a piece of pliable copper wire, clean out the hole as far as you can, and then push the wire into the burrow of the insect. If the wire is pliable enough it will follow the burrow and kill the worm. This is the best you can do to reach borers after they have made entrance. Then thoroughly whitewash the tree to prevent further injury, carrying the whitewash up on to the larger branches and down below the loose soil, so as to be sure that everything that is not protected by the foliage of the tree is included in the white covering.

THOSE STRAWBERRY PLANTS.

Just before going to press we received a letter from Mr. Etter, of Briceland, dated January 30. In this letter he states that the mountain roads are almost impassable and that only letters are being carried out. He would send out on January 31, 100 packages of berry plants, and if they could go through without delay, he would rush the rest of the orders. Rather than have the plants piled up in sacks at some station he thinks best to hold them at home till the roads are open. If your plants have not been received, don't worry. You will get them.

Agricultural Views of Game Laws.

To the Editor: There appeared in the issue of January 4th of the PACIFIC RURAL PRESS a forceful editorial under the heading "The Livery of Heaven," which must appeal strongly to all ranchers directly affected by the present game laws.

Living as we do in the heart of the large game country of California, we have had a chance to observe just where our game laws are weak and unjust.

They are weak because they cannot be enforced. Good citizens break these game laws continually. The game wardens keep close watch on the ranchers, and the prospectors, whose fresh meat supply is generally limited to an occasional deer or bird. They have the power to enter our homes and search them on the slightest pretext; they can raid the camps of these prospectors, and do other work that makes a showing in the yearly report; but until the ranchers and prospectors respect the laws it will be impossible for any commission to enforce them.

Our game laws are unjust because they are made to serve the purposes of one class of people, the sportsmen. These sportsmen come to our district in the summer, bringing their hunting licenses, kill two bucks, and go home. In September they virtuously take their well-worn licenses and go to Tahoe or Kings river and kill two more bucks. Who is keeping tab on these men? How can the Commission tell how many deer one of these traveling sportsmen kills?

This is not a case of over-active imagination. Every summer we Trinity county people are up against this man who brags of what he kills in other counties. He expects the good old mountaineer to "keep mum." Yet this is the man who is chiefly instrumental in having a game warden keep tab on the mountaineer for twelve months in the year.

We mountain people believe in game laws, even more and better laws than now exist. For instance, the bear should be protected. He is unfit for human food in the summer and his hide is worthless. The open season should be at a time when he is fat and furry. (Recommendation 8 of Mr. Taylor's letter to the Press deals with this point.)

We believe in the protection of deer, but as the law now stands it works a hardship to the rancher. It is up to him to do all the protecting, along with feeding these animals his clover and alfalfa.

The game laws are particularly unjust to the isolated mountain rancher. Situated as he is, far from markets, he must look to his range for fresh meat. Should he be fortunate enough to have beef, mutton or pork, he can only dispose of part of it fresh and must salt down the rest. It does not make any difference how hungry his family may be for fresh meat, he may not kill the deer nor the birds that are living in his orchards and fields. Is there any justice which makes a poor man (for most mountaineers are comparatively poor) feed animals and birds for nine months in the year that the man who uses game for a luxury may come and kill them in the open season? The question that interests us is this: Shall the resident of the game district be limited to the same number of game in a year as the non-resident hunter?

Another aspect of the present deer law comes home to the resident. How shall a man dispose of the deer killed on the last day of the season? He cannot eat it all that day, and yet he may not have salted or dried meat in his possession in the closed season.

As for the protecting and preservation of deer and other game, there is no better way than to put a bounty on bobcats and coyotes. These two animals kill as many fawns as the panthers. With a reasonable bounty on the first two named, the saving of game would far offset the "kill" of the resident hunters, should they be allowed to kill deer out of season.

We heartily endorse the suggestion of the PACIFIC RURAL PRESS for State Game Preserves, and

we wish to put ourselves on record as strongly opposed to the present method of "conservation for the purpose of killing."

J. B. PATTERSON.

Burnt Ranch, Trinity county.

Concerning Game and Game Laws.

To the Editor: Some game laws are a necessity for the protection of our wild birds and animals; but the game laws which interfere with the liberty of the citizen and obstruct and restrict his liberty to hunt, except in places where there is no game, are not only unjust but are clearly illegal. In Europe, where the rich own the land and have big game preserves laid out and guarded against poachers, as those hunters are called who want some of the game on the big preserve, such systems have some claims to legality if not to justice. But, in this supposedly free country, where every man is supposed to be as good as a king, if he be a decent citizen, it goes against the grain that he is not allowed to hunt on the thousands of idle acres which are now controlled by clubs in California—rich clubs, which have somehow obtained permission to use these idle lands, although they do not own any of the land.

Look at the thousands of acres of land in the San Joaquin and Sacramento valleys, and other sections, controlled by these rich hunting clubs, where the average citizen dare not hunt except at the risk of his life, as there has already been two persons killed for alleged trespass on the clubs' duck grounds. And the "license" to hunt is a deliberate State steal, in the frantic endeavor to Europeanize America so far as hunting laws go. And there has been a strong sentiment to tax people for fishing in the free waters of the State.

The ranchers who own a ten or twenty-acre ranch have a right to forbid hunting on their grounds, except by permission. That is perfectly right and legal. But the thousands of acres of wild land, much of it marsh and not fit for cultivation, should be free to any and all citizens, no difference whether claimed by a gun club or not. And the law should be so amended that all citizens shall have the right to hunt anywhere at any time on any land not cultivated, within the boundary of the State.

And not only this, but wild game should be allowed on sale everywhere in any of the open seasons for the different kinds of game and fish; because the average citizen, the poor man, never gets a smell of wild game under present laws. Some of the seasons for some kinds of so-called game should be shortened. The deer season should be closed entirely for five years and then opened for a month at a time, say the month of December. But the duck season is about right. Waterfowl, being migratory, are not so easily exterminated as are the deer and some of our birds, especially the quail, which is a real blessing to the farmer. But the quail season should be confined to one month, commencing October 1 and ending November 1. Meadow larks and blackbirds should be classed as game birds, with a season of one month for the larks and three months for the blackbirds. Rabbits should have a season from October 1 to December 1, as these animals begin breeding in January or February.

Talking about deer, really if I could have my way I would close the season for deer forever, and have the deer raised in parks as food for the people. This can be done, and it will have to be done eventually, or the deer will go like the buffalo, be virtually exterminated, as it has been in nearly all the Eastern States. But in some of the States deer parks are maintained, and at the proper season so many of the deer are killed and sold to the butcher. And this should be done in California. Many towns could maintain deer parks which would insure revenue as well as an attraction for the town.

America is not a free country if the laws permit a certain class who do not own the land to

monopolize all the game on the land and say to all other citizens, "Keep off; only our club can shoot ducks on these thousands of acres!" "You can't kill quail or shoot rabbits on these lands!" Clearly, all this sort of thing is illegal. All land not improved should be counted as public land, unless it be timber land, and even that should be free for everybody except timber thieves.

I do not expect any laws to pass the Legislature favoring the poor people who are unable to join gun clubs, because the gun clubbers have their friends in the Assembly, and some of the members, even, are members of gun clubs. But I would like to see a law passed making all the public domain of California free for any citizen who wanted to go out and kill a duck or a rabbit for himself on any land anywhere not strictly private. Then the poor people, the workers, the middle classes, would be enabled occasionally to know what a wild duck, a goose or a rabbit tasted like.

Let us have equal justice to all in this matter. God created the land for all. And no man or set of men have any legal or natural right to bar any man from hunting on vacant land just because he does not belong to a gun club, especially where the gun clubber does not own the land.

Dinuba, Cal.

J. H. DAVIS.

OREGON FRUIT-GROWING.

Combining census figures with the results of his own observation, H. M. Williamson, Secretary of the Oregon Board of Horticulture, gave an interesting address before the Oregone Horticultural Club recently, of which the Homestead gives an outline: He referred to the fact that the man who puts his education into immediate practice is a greater success than one who takes an educational course without that immediate practice. The club is made up of men from the fields and packing-sheds of the Oregon Nursery Co., which has a 1200-acre nursery there. These men are studying horticulture, meeting regularly each week, while doing practical work in the employ of the big nursery.

Mr. Williamson said the horticultural interests of Oregon had developed more rapidly than any of the other industries. While the State has shown an increase of 62% in population during the last decade, the total valuation of all fruit produced in the State had increased 268%. He indicated that the greatest increase in fruit production in 10 years belonged to plums and prunes, which showed 385%, pears 234%, cherries 175%, apricots also 175%, apples 132%, and peaches 77%. He showed that the increase far outstripped that of any other farm products, as eggs showed up with an increase of only 54%, butter with 40%, and potatoes with 28%, while all grains in the State showed an increase of 92%. The production of nursery stock reached the unusual increase of 416 per cent.

He stated that the Willamette valley made the biggest showing for the decade in the matter of fruit production. He also pointed to the necessity of utilizing all by-products in connection with the production of fruit. The fruit industry of the Northwest has not really begun to utilize the by-products.

In summing up the importance of the fruit-growing industry, he stated that while Oregon was bringing in butter, eggs, and other products from the East and was exporting all kinds of fruit, it has a lot of improvement to make yet before it will rank first in the quantity of apples alone produced in the United States. In this connection he stated that five other States, Colorado, Minnesota, Wisconsin, Washington, and Nebraska, came in order before Oregon in the biggest production of apples, Oregon being sixth.

OLIVE SEEDLINGS.

G. P. Hall, of San Diego, gives the Western Empire the following hints for those who desire to experiment with seedling olives:

After the pulp has all been taken off with lye water (in order to remove all the oil and to roughen the shell), the seed is washed in clean water and then kept in moist sand till planting time, which is in February and March. They will not all germinate the first year, so it is best to preserve the seed-bed. Some assist the germina-

tion by cracking the pits in an iron vise; one turn of the screw generally splits the shell. Leave the pit in the cracked shell when you plant in the prepared seed-bed. Some use boxes perforated to insure drainage; the boxes are filled to within, three inches of the top with good sandy loam, then the kernels, cracked or otherwise, are spread over the top and an inch or more of sand covers

the whole, which must be kept constantly moist. The cracking of the kernels greatly accelerates the germination, and a person can prepare 600 or more seed in a day. Take seed from best trees and avoid dwarfs of any kinds like the rubra that rot on the tree. Use Missions, Manzanillos, Ascolanos, Olbitzas, and any good kinds of either pickling or oil olives as you may desire.

Treatment of Frozen Trees.

To the Editor: Will you kindly give the proper method for pruning and treating frozen lemon trees? I contend that the frozen fruit should be removed and the frost-bitten wood be cut out as soon as possible; also, that the tree should be cut back somewhat to give a fresh start, in order that it may recover quickly from the shock of the frost—I mean trees that have been badly frozen, so that the bark has split. I am asking for your opinion, as such a freeze as we have had occurs only once every twenty years or more, and I wish other opinions than my own.

Whittier.

A. L. B.

[As you say, we do not have experience of this kind often enough to get very wise about it, and few have demonstrations to point out. Our belief is that frozen wood should be cut out as soon as one can be sure just how far the injury has gone. We doubt if cutting back should be done until that fact is apparent by the condition of the tree. We have known people cutting-back immediately to go farther than was necessary. In the case of splitting of bark our conviction is that bark which is split and loosened is never restored; therefore, we doubt very much the efficacy of binding or covering with grafting wax or other materials. It may be worth while to bind for the purpose of preventing drying and then cut back splits to healthy bark and paint over the wound later. This would be, however, for the purpose of definitely understanding just how far the injury has gone. We doubt very much, as stated before, if loosened bark is ever restored to its position and to active service.

Still, some readers may not be satisfied not to be doing something strenuous in a remedial way, and so we give them the help of a prescription which a confident writer sets forth in the Western Empire in this way:

Those who have young citrus trees that were frosted so hard that the bark split should attend to their trees at the earliest possible moment.

A preparation consisting of six parts beeswax, four parts rosin and two parts paraffin should be well mixed by warming, and applied with a brush. This can be easily done as follows: Get a large pail, cut an opening in one side a few inches from the bottom, the opening to be large enough to be used for placing wood in the pail to be used for fuel. Hang a smaller pail in the large pail by wire. This will give you a cheap, easily constructed stove for heating the preparation as given above.

The mixture of beeswax, rosin and paraffin should be applied to the split parts of the tree with the brush, and then the tree should be wrapped with newspaper, or better still, paraffin paper, which can be purchased in sheets cut 12 by 36, which size has been found to be most satisfactory. This wrapping keeps off the sun and wind and is very essential.

The trees should then be closely watched, and when they start growing, along about March or April, the binding should be removed, otherwise it will interfere with the free flow of the sap and injure the trees.

Some growers are using white lead and a three-inch strip of cotton for binding their trees, while still others are putting on orange shellac, which can be purchased at any paint store.

The mixture of beeswax, rosin and paraffin, however, is considered the safest to use. The easily constructed stove for heating the preparation as described above is essential, as it enables the operator to go from tree to tree with the preparation in shape for putting on; otherwise it would be impossible, as it cools rapidly.

Be sure and watch the trees for signs of growth, as all binding must then be removed at once.

We shall be glad to have from all readers statements of conviction and observation along these lines.—EDITOR.]

A PEACH-NECTARINE TREE.

To the Editor: Moulton Harmon, a 'pocket' miner living about a mile and a half north of Sonora and on the west slope of Bald mountain, has a tree, one fork of which bears nectarines and the other peaches. The tree has not been grafted nor budded. The history of the tree is as follows: About six or seven years ago Mr. Harmon brought home some large, pink-cheeked nectarines, and after eating them he planted seven of the pits in a small garden patch near his cabin. Five of them grew, and when they bore fruit, three of them bore peaches, one bore nectarines, and one both peaches and nectarines.

Mr. Harmon noticed that the tree had two branches when about six inches high, so at that time it was impossible for it to have been budded or grafted. He let both branches grow. The tree is now about four inches in diameter at the ground. It has but one tap root, and the forks evidently started at the pit. The peaches and nectarines that the tree bears are both large and with a pink cheek. The peach blossoms about ten days earlier than the nectarine.

Through close observation and inquiry, I feel positive that the tree has not been budded or grafted, and can see but one way that it has come about, and that is as follows: That the pit had two kernels in it and, being a hybrid fruit, through pollenization one kernel became peach and the other nectarine; that they became bruised when starting to grow and grew together, and later one of the tap roots died, or perhaps was eaten off by a gopher, thereby making a forked tree with one tap root.

F. J. RALPH.

Sonora, Tuolumne county, Cal.

[Your facts are very interesting. Your theory accounting for the peculiarity of the tree is rather more elaborate than necessary. The nectarine is simply a smooth-skinned peach although it has been known and grown from remote times as a different fruit. Cases enough are on record to demonstrate that the nectarine occurs on peach trees by bud variation, and the peach may sport on a nectarine tree in the same way—that is, a nectarine bud (for what reason no one knows) may be the starting point of a branch which will bear peaches. This would account for the double tree which you describe. The more interesting fact which you state is the one which you do not emphasize, viz., that nectarine pits grew a preponderance of peaches. This might indicate that the peach is the original form, because of the tendency to revert to it, and this would be against the argument, which is sometimes advanced, that the nectarine is the older and put on the fuzz and became a peach because the fuzz would protect its fruit in some way. We are thankful to you for reporting your observations.—EDITOR.]

OLIVES AFTER GRAFTING.

To the Editor: Last September I purchased an olive grove of fourteen-year-old trees that had been grafted the previous spring to Manzanillos. About half of the best placed limbs on the tree were removed for grafting, and the rest of the growth still remains. The trees were irrigated once the first part of May. Water went out of the ditch the first of June, and a pumping plant had to be put in before any more water could be given them, which was not until August 1st.

The grafts, of course, suffered considerably dur-

ing this time. They were watered twice after August 1st and improved wonderfully, some making as much as a five-foot growth, but many are not more than eight inches long. These, however, seem to be in spots where it was a little high and hard to get water to. The suckers were all kept trimmed close off, even close up to the grafts. Was this proper or should they have been allowed to grow on the stub close to the graft to keep up a strong sap flow?

Would it be best to leave the old limbs on another season? Even if in your judgment it would be generally better to remove them now—inasmuch as it is essential for me to get something of a crop this year to carry me through—could they be left on without holding the grafts back too much? Of course, I will want them to at least make a healthy growth this year and will take the steps necessary to secure it. II. R. B.

Reedley.

[For the future work of the orchard it would be best now to remove all but the grafted limbs and get the trees into shape to bear large amounts of the variety you desire. It was right to keep the suckers off the grafted stubs after the scions began to grow well. It is also desirable to check the growth of suckers partially before that so as to increase the sap flow on the scion-buds and force them into activity. Grafting part of the branches and leaving others to grow is for the purpose of equalizing sap pressure, lest too great pressure might "drown" the scion, cause gumming, etc., which would prevent its growth.

If you need the bearing of the old branches, they can be allowed to remain longer on those trees which are making most growth on the grafts, because the latter are strong enough to fight for their living. We should, however, remove the old branches when the grafts show, by their small growth, that they need more sap, and we would also make an extra effort to build up those trees by getting water to them regularly next summer.—EDITOR.]

GERMINATION OF TWIN-KERNEL ALMONDS

To the Editor: In answer to your request for my experiments in the germination of almonds, I remark that I have made a test of these, planting them in seed boxes in the greenhouse, and find that the double-kernelled ones germinated and grew just as well as those with the single kernel.

Following up this experiment, I broke the shells so that they would germinate quicker. The double kernelled ones were planted by themselves. In the nursery rows this plant could not be followed, so that two sprouts would come out of the one seed. One of these, however, could be easily pulled up and the other left.

I noticed in this test that there was a certain percentage of the seedlings which immediately made lateral roots, while others made straight roots. This is also very common when planted in nursery rows. Now the question arises in my mind, why do some of the seedlings make laterals and others not? There is some reason for this which I am unable to determine. You perhaps, with your long experience in experimenting, may be able to throw some light on this matter, which I consider of some value, because in recent years the planter has objected to this straight root.

My belief has always been that the one is just as good as the other, for the reason that in digging the trees out of the nursery rows the tap root is cut. From this cut the root commences to make lateral roots, just the same as the top will throw out branches when cut back. In this testing of the almond pits, I noticed that where we had pulled out one of these seedlings, about two weeks ago, and which we replanted, the root had commenced to throw out new rootlets from the broken place.

Why there should be such an objection to straight-rooted almond trees I am at a loss to know. If that rule applies, why do they not object to the straight tap root of the walnut? If the straight-rooted almond is not satisfactory, then I should say that the straight-rooted walnut would be still worse.

I read in the PACIFIC RURAL PRESS recently an extract from a paper that had been read at the Fruit Growers' Convention at Santa Barbara, by an authority on walnut culture, who said: "Select

for planting thrifty trees, two or three years old, with tap roots not less than two feet long."

This is all that I have to say on this matter, and I think it is of sufficient importance for you to give it a little thought. JOHN VALLANCE.

San Francisco.

[Mr. Vallance's demonstration of the germinating behavior of the almond will be interesting to many. To us it seems unreasonable to insist either upon the presence or absence of the tap root, because, if the tree is set in deep free soil,

it will assume its habit of deep rooting, any way. It is as natural for the almond root to go downward as for the sparks to fly upward. We have seen transplanted almonds which had lost their tap roots by the ordinary process of tree digging, sending other roots directly downward from the cut end of the old tap root. There is a lot of time wasted in discussions about tap roots: it is more important to give attention to planting well in good soil, when the soil is in the right condition for planting. When that is done the tree will look after its own roots.—EDITOR.]

Values for Stock Foods.

[By Our Associate Editor]

We have received the following communication: "I would like to find what the present market value is (approximately of course) of the carbohydrates, fats and proteids in roughages like alfalfa and wheat hay, in soft feed like beet pulp, carrots, stock beets and in concentrates like soy bean meal, corn, middlings, etc."

The writer of the above realizes that all such statements of values based on chemical composition, and even upon digestibility, are very roughly approximate and will have to be taken from that light. In the table below we give the composition from a feeding standpoint of various foods of all three classes named above, also a statement of digestibility, based on Bulletin 164 of the Agricultural Experiment Station at Berkeley. Any one familiar with the different feeds will see at once that the calculated value is often far off from the actual value.

In the first place different samples of the same thing, alfalfa or whatnot, will differ greatly from one another. In the second place there will be a great difference in the amount of any food utilized by the different animals and by the same animal under different conditions, and thirdly one food might be much more valuable than another on account of the way the stock relished it, or on account of the way it combined with other foods, or on account of some physical benefit to the animal, even if the two foods might contain about equal amounts of material that would be digestible. This explains why there are so many discrepancies in the calculated value and the actual value of many foods quoted.

The cost given is somewhere near San Francisco wholesale price and the feeder will have to change the figures according to the cost to him. For the different varieties of hay alfalfa is used as a basis for calculating values, alfalfa being the cheapest hay to produce there is. The small value to the grain hays by calculation is misleading, for these

are much better than alfalfa for certain uses, even if under certain other conditions alfalfa hay would give much cheaper nutriment. For the green feeds like stock beets, green corn, etc., green alfalfa is used as a basis of calculation, with a value of \$2.50 per ton, possibly the average cost, or value delivered at the stable. This also makes the other green feeds appear to have too small a value. If a person wants to give green alfalfa or alfalfa hay a different value than has been given a little arithmetic will show what value should be given in the tables to the other foods. For the concentrated feeds bran at \$25 per ton is used. In this instance if dried beet pulp is to be compared with bran rather than with green alfalfa it should be given a value of about \$34.80 per ton.

California Conditions.—On account of California conditions being radically different in feeding from the East, we are using an entirely different method of calculating values. In the East the protein or proteids are of especial value on account of general deficiency in natural roughage. Here the alfalfa hay is so cheap and general that no special value should be given to the protein, so it is simply given an equal value with the carbohydrates, for it has the same value as the latter in producing heat and energy. Fat is given $2\frac{1}{4}$ times the value of protein and carbohydrates, for it has that much more heating value in the system. If any change should be made those foods containing lots of fats should be valued quite a little higher.

The first three columns have to do with the composition of the food, the second three with the pounds per hundred that are actually digestible. The total value is in the amount digested, not in composition. The cost column is approximate cost, per ton, the last column the calculated value per ton as compared with alfalfa hay at \$10.00, fresh alfalfa at \$2.50 and bran at \$25.00. As before stated this calculated value is often far from the actual value

COMPOSITION

PER CENT DIGESTIBLE

MATERIAL	Protein	Carbo	Fat	Protein	Carbo	Fat	Total	Cost	Value
Alfalfa hay.....	17.60	39.31	3.08	12.3	37.1	1.6	43.0	\$12.50	*\$10.00
Barley hay.....	11.11	50.37	2.38	5.8	43.1	1.6	52.5	.....	12.20
Wheat hay.....	5.96	55.35	1.81	3.6	46.1	1.1	52.2	\$20.00	12.10
Wild oat hay.....	5.70	39.24	2.28	3.4	44.1	1.1	50.0	15.00	11.65
Bur clover hay.....	10.50	42.92	2.23	7.3	41.2	1.8	52.2	.....	12.10
Rye grass hay.....	5.09	47.96	1.90	4.4	43.4	.9	51.0	.....	11.90
Green alfalfa.....	4.94	7.90	.74	3.7	7.3	.6	12.4	\$2.50	* 2.50
Alfalfa.....	2.83	9.81	.92	2.1	8.5	.7	12.2	.....	2.45
Beets, mangels.....	1.40	5.50	.20	1.1	5.4	.1	6.7	.....	1.35
Beets, sugar.....	1.80	15.00	.90	1.6	11.9	.1	13.7	.....	2.75
Beet pulp, fresh.....	1.15	6.25	.13	.9	7.3	.1	8.4	.....	1.90
Beet pulp, dried.....	8.10	53.03	.65	4.1	59.5	6.5	78.5	.....	13.85
Carrots.....	1.10	7.60	.40	.8	7.8	.2	9.1	.....	1.85
Green corn.....	1.80	12.20	.50	1.0	11.6	.4	13.6	.....	2.75
Pie melons.....	.77	2.88	.22	.7	3.3	.2	10.8	.....	2.15
Potatoes.....	2.10	17.30	.10	.9	16.3	.1	17.4	.....	3.50
Pumpkins.....	1.30	5.20	.40	1.0	5.8	.3	7.5	.....	1.50
Turnips.....	1.10	6.20	.20	1.0	7.2	.2	8.7	.....	1.75
Barley, grain.....	12.52	68.91	2.08	8.7	64.3	1.7	76.8	\$27.00	34.05
Corn, Indian.....	10.30	70.40	5.00	8.6	63.8	4.2	82.0	31.00	36.40
Corn, Egyptian.....	10.06	68.35	3.29	8.3	63.3	1.6	75.2	34.00	33.35
Corn, Kafir.....	9.90	74.90	3.00	7.5	70.5	2.6	84.0	31.00	37.25
Milo maize.....	10.70	72.20	2.80	8.0	67.7	2.5	81.4	.....	36.05
Oats.....	11.80	59.70	5.00	9.2	47.3	4.2	66.1	37.00	29.30
Wheat.....	9.00	77.05	2.40	7.0	67.0	1.4	77.2	32.00	34.15
Dried peas.....	24.60	57.50	1.00	19.0	51.2	.6	71.6	65.00	31.75
Whole milk.....	3.60	4.90	3.70	3.6	4.9	3.7	17.0	.....	7.50
Skim milk.....	3.30	5.30	.10	3.3	5.3	.4	8.7	3.00	3.90
Buttermilk.....	4.00	4.50	.50	4.0	4.5	.5	9.7	3.00	4.30
Rolled barley.....	12.23	68.29	1.93	7.4	65.6	2.5	78.7	28.00	34.90
Soya bean meal.....	44.74	25.79	5.01	40.0	22.5	6.5	77.4	42.00	34.25
Wheat bran.....	15.78	56.20	3.22	12.6	38.9	2.2	56.4	*25.00	25.00
Middlings.....	15.22	60.55	4.77	12.2	53.4	3.8	74.3	35.00	32.95
Chop.....	3.81	53.17	1.17	2.8	39.2	.6	43.4	.....	19.25
Brewers grains.....	20.14	47.11	5.70	16.1	36.7	5.1	65.8	.....	28.70
Cocoanut meal.....	19.51	42.12	10.40	16.4	42.4	9.7	80.0	30.00	35.45
Linseed meal.....	30.70	37.95	7.03	26.1	38.5	6.5	79.5	40.00	35.05
Malt sprouts.....	19.53	45.17	1.96	15.6	35.8	2.0	55.9	.....	24.80
Rolled oats.....	12.30	66.80	7.32	9.5	52.1	7.3	78.2	37.00	34.65
Shorts.....	16.27	58.65	4.20	13.0	46.0	3.8	67.5	30.00	29.90

LIVESTOCK NOTES AND COMMENTS

[By Our Associate Editor]

The annual report of the Portland Union Stock Yards Company and a weekly statement of market conditions that has come to hand should give the California stockmen some valuable food for thought, especially with the bay city markets cut up into three or four different sets of buyers and certain vigorous attacks developing with every suggestion for stockyards for California. There were received during the year in the Portland yards 76,521 cattle, 2,798 calves, 120,953 hogs, 255,607 sheep and 2,413 horses and mules, altogether 5,666 cars of stock. In 1911 there were 5,844 cars, in 1910 5,408 and in 1909, when the yards started, 1,417 cars. The stockyards is the determining market of the whole Northwest, drawing extensively upon Oregon, Idaho, Montana, California and Washington, as well as upon other States as far East as Missouri to a less degree. During 1912 California shipped in 6,692 cattle, a little more than half of what she shipped in the previous year. The stockyards gives a market for every man's stock whenever they are ready for the market, and the weekly letter gives a good idea about the condition of the market at any time. That for the week ending January 24, for example, shows all kinds of stock firm. The prices for that time ran with the best steers selling at \$8.00; cows \$6.75 to \$7.00 and heifers \$7.25 to \$7.65. The veal market was strong at \$9.00 for choice light calves, bulls and stags steady. Hogs on Thursday were going at from \$7.50 to \$7.75, which was better than earlier in the week. Wethers sold from \$6.25 to \$6.50 and ewes at \$5.50, lambs at \$7.00 to \$7.35.

* * *

That cow testing is a profitable thing is pretty well demonstrated by the report of the Ferndale Cow Testing Association, which is winding up its fourth year. Instead of quitting with laurels the demand for more testing is so strong that it looks as if the association will start with two testers next month. A year ago it was the only testing association in the State. Now there are several others in operation and more in process of formation and the Humboldt county dairymen have to expand in order to keep at the forefront of progress. That Bulletin 233 of the Agricultural Experiment Station on the Ferndale Cow Testing Association ought to be read by every dairyman.

* * *

Speaking of Humboldt county dairymen reminds one of turnips. As a large percentage of dairymen have agreed not to feed turnips any more and as the creameries have agreed not to buy milk from dairymen who feed turnips, that crop looks to be in a bad way as the overripe turnips used to put the milk. There is lots to be said in favor of turnips and it is doubtful if the abuses in feeding by a few inconsiderate dairymen can keep the others from growing and feeding them the right way for more than a season or so. It is unfortunate that one man has to suffer for another man's sins, but such things often happen.

* * *

The Aberdeen Angus men are bound to be heard from more even than they have been it seems. The Association has decided to hold three big sales this spring, at Omaha, April 29; Chicago, May 1, and at St. Louis, May 2. The sales of the other breeds have been so successful that the Angus men are going to get on the bandwagon also and have put up a lot of money as prizes to bring out a fine quality of stock. With the announcement of the sales they are sending word to every breeder to see that his State legislature appropriates a good big sum for awards to State livestock breeders for awards at the 1915 Fair. Californians are not the only ones interested by a long shot, all States and all breeds seem to be planning to beat out other States and other breeds. We are going to see a fine display of Angus at the Exposition and the way that this breed has been winning in earlots and single steers all over the East, the display will be well worth seeing.

* * *

The matter of the treatment of the harness horse at the Panama Pacific International Exposition seems to be a good deal up in the air and the directors have not decided yet what kind of

a track can be provided. Unless there is some change it would seem that the harness horse was to be given little more attention than is absolutely necessary. This is regrettable. There will have to be a first-class track for other purposes than horse racing and the merits of the harness horse are such as to entitle him to the best kind of treatment. The interests of the farmer, it is true, are more with the drafter than the harness horse and thoroughbred, but it will be an unfortunate time for the farmer when there is no incentive toward breeding horses for something besides weight and muscle. From all over the world men who are interested in good horseflesh will come to the Fair and it would seem peculiar if California, noted for its fine horses, appeared to forget that harness horses and thoroughbreds ever had any value. From an economic standpoint it is interesting to note at this time that the U. S. government has recently purchased four of the best thoroughbreds that could be secured for its work in breeding good cavalry horses. It would be funny if California was turning down good horses just when the Federal Government was going after them.

Word has come that the Humboldt County Dairymen's Association has decided to affiliate with the State Dairymen's Association, according to the plans and constitution of the latter. This will cost each member of the county association 10 cents a year, a small sum, but productive of big returns from the way the State organization is fixing up our dairy laws and keeping the city clubs from interfering and the way it is helping out in other respects.

The work of the Pacific Rural Press in the State Association activities seems to be appreciated, according to the following letter by S. A. W. Carver, secretary, who has done a big part of the work in drawing up the proposed dairy law. This letter says in part: "The article in the Pacific Rural Press of January 25 on the proposed legislation regarding bovine tuberculosis is the best and most sensible I have seen. I can use 120 copies of that issue to good advantage." It has been the fashion officially to rely on the tuberculin test to clean up the herds. Most dairymen seem to have found that good care and the removal of animals that really are not physically fit is the rational way of doing things.

How to Use the Babcock Test.

[By Our Associate Editor]

A subscriber has had excellent success with a certain use of the Babcock test, one that was quite profitable, and he wants to make a further use of it. He invested in a set of apparatus, learned how to operate it, and then began to test his cream. The home test was eight points higher than the creamery test and kept that way until he asked the creamery how it happened. Then the creamery test worked up to the home test and both have remained the same ever since.

This test has been so profitable on the creameryman that this dairyman is going to try it on his cows to see if they will also do better, and wants to know, not how to make the test, but how to apply it.

Applying the Test.—It is best to test the milk once a month. More frequent testing is unnecessary, less frequent rather unreliable. That monthly test will show accurately how much fat the animal produces during the year. It is as often as the testing is done in the Cow Testing Associations and as often as the milk is tested in the purebred dairy cattle associations, where our great world's records are made, although there the milk for official records is also weighed every milking as well.

Two milkings are taken, preferably the milk from the evening's milking and that from the following morning. All of this milk is weighed and a certain small amount of each taken. These two samples are mixed and a composite sample taken from it and the fat therein accurately determined. This shows the total amount of fat in the milk from 24 hours' work of the dairy cow.

For Example.—For example, the total weight of the milk in the two milkings may be 25 pounds. The sample will show that this milk contains 4% fat, or four pounds of fat in 100 of milk. Therefore in the 25 pounds of milk which represents one day's work of the cow there is one pound of fat. If she gives more milk, or less, and has a different test a little arithmetic will show how much fat she gives per day.

Now, in the cow testing associations the test does not represent only the fat in the milk of one day, it represents the milk of a whole month. The tester counts back 15 days and ahead 15 days, multiplies by 30 or 31, and credits the cow with one month's fat. If it is a pound a day she gets 30 pounds to her credit. If it is .80 pounds it amounts to 24 pounds for the month, and so on.

It is best to count the day of the test as the middle of the month, rather than the beginning or end of the month, as a cow usually gives less fat at the end of a month's milking than she did at the start. Thus, if the test is made on June 1st, the tester in his figuring counts from May 16 to June 15, inclusive, or 31 days, rather than from June 1 to 30. Also if a cow freshens on May 20th, and her milk is first used on May 24, he counts back only 7 days and ahead 15 days, or 22 days in all. Likewise he cuts her month short on drying, or lengthens it out according as the date of the nearest test comes, so as to give her due credit

for the fat given. By this policy the real amount of fat produced is shown with remarkable accuracy.

Variations in Test.—It is misleading to judge a cow by only one test. As a rule a cow gives a good deal more milk when fresh than when far along in milk, though her milk is not so rich. To say, therefore, that because she tested only 3.5 when fresh she tested only 3.5 when well along in milking, would be doing the cow a rank injustice.

A person might perhaps make a fair approximation of the value of a cow by testing the milk when fresh, half way along in milking period and a month before dry, but that would not be as good as to test every month. The whole milk should also be tested rather than a part, as the first part of the milk is much less rich than the latter part. In fact the last pint of milk is several times richer in fat than the first pint.

The milk should also be tested when the cows are given their usual feed and handled in the usual way, as anything out of the way may greatly influence the composition and flow of milk. As a rule milk produced when the cow is off normal, say when she is in heat, is richer than usual, though there is less of it. Likewise a cow that freshens in poor condition may make a bad showing, but the next calf do well if she is well kept.

Effect of Age.—In trying out a young cow it is well to have some method of judging what she will be later on. Heifers with their first calves usually test somewhat higher than older cows, though not enough higher to amount to anything of importance. Young cows that test very high usually approach normal in the composition of their milk very rapidly in future calvings.

The different purebred dairy cattle associations have regular schedules for admission to advanced registry for the different ages, but possibly the actual records of young and old cows will be more accurate as showing what a young cow promises to do later on.

For example the records of two year-olds recorded during a certain period in one of the dairy associations was 362 pounds of fat per year, and in another 365 pounds. Aged cows in each case made a little over 100 pounds a year better than the young cows, and cows with their second calf were about half way between. In other words a cow with her first calf ought to produce about three-fourths as much fat as when she reached good milking age.

There is a good deal more to be said on breed characteristics, but the above will show how the amount of fat during the year, or the milking season, is calculated. First the milk of two consecutive milkings is weighed and a composite sample taken and tested. That shows the fat per day, which in turn shows the amount per month and the test of every month will make the test for the year.

Test Bottles.—Although it is a little aside from the subject, a few words might be said for the

benefit of those acquainted with cream testing as they can see it at the creamery any day, but not acquainted with the testing of milk. The first difference between the two is in the bottles used. In the test the fat in milk or cream is driven up into the neck of the bottle, where the amount is shown at once by a scale on the neck of the bottle.

Cream has so much fat in it that the bottles have to have a very thick neck, which makes the reading of the test rather difficult. The neck of the milk bottle is thinner and the fat much easier to read. The whole test is also slightly easier to put through than the cream test, although there is very little difference in the method.

There are, by the way, variations in the test bottles and a person should always buy from a reputable house, and if desired, an inspector from the State Dairy Bureau will examine the bottles to see if they are accurate.

VETERINARY PROBLEMS.

Wound in Teat.

To the Editor: I have an excellent grade Jersey cow with an open slit about one-fourth to one-third of an inch in the side of one teat. I have lacerated the edges and stitched the slit well together many times but the milk will ooze out and prevent healing together. I have used numberless milk tubes to no avail, as the flange on the tubes loose out. When I remove the flange the tubes creep up into the udder and it is a trouble to get them out again.—A 25-Years' Subscriber, Tehama County.

ANSWER BY DR. E. J. CREELEY

Wounds of a quiescent udder usually heal, but if the cow is in milk and the lesions involve the teats it is exceedingly difficult to heal the wound, as the irritation delays or interrupts the healing process. The following lotion is one of the very best to use for teat wounds:

Tinct. Iodine	2 oz.
Tinct. Arnica	2 oz.
Glycerine	2 oz.
Comp. Tinct. Benzoin	2 oz.

Mix and apply twice daily after washing with 5% solution carbolic acid and castile soap.

Your milk tube must be an ancient one, as all milk tubes of today are self-retainers and could not slip into the udder. Care must be taken to boil the tube previous to each using as you may cause an infection of the udder by a filthy tube.

Failure to Breed.

To the Editor: I have a young Jersey heifer which had her first calf last June. Of late the cream we get from her milk seems bitter and gets more so the longer it stands and the butter churned from it is of course the same way. I have also been unable to get her with calf again. Please give me any information you may be able to impart.—Subscriber, Acampo.

As long as she has had one calf it is proof that she is not sterile. I am of the opinion that at the last parturition her cervix (neck of womb) was lacerated and scar tissue has formed occluding the passage of the male fluid. An examination by a qualified veterinarian would reveal the correctness of the diagnosis and an operation could be performed correcting the fault.

Diseased Uterus of Mare.

To the Editor: I have a brood mare that has given me two fine colts, but for the last two years I have not been able to get her with foal. She takes service and then refuses service for three or four months, and about the time I come to the conclusion that she is safe with foal she will pass off great quantities of matterly substance. I have had her thoroughly washed out with Lysol previous to breeding, but so far she has repeated this performance each time about three or four months after service. Can you give me any help in the matter?—Subscriber, Ceres.

This is a disease of the ovaries or uterus; perhaps mummification of a foetus. I would irrigate with a normal salt solution (teaspoon salt to each pint of warm water) once daily. I would insert the solution through the neck of the womb into the uterus. Report progress after ten days. Give internally 1/2 ounce daily of Fowler's solution of arsenic.

San Francisco Veterinary College.

Increasing the Duty of Water.

We have found in California that of the two things required for the production of good crops, land and water, the latter is the more important. Therefore when water is scarce everything we can do to increase our supplies of irrigating water, or everything we can do to make less water give as good results as the amount used before, is the same as adding more valuable land to our public wealth. Some important suggestions as to possible methods of saving water were given by Prof. B. A. Etcheverry, head of the Department of Irrigation, University of California, in a paper read before the Twentieth National Irrigation Congress at Salt Lake City, a few of which are briefly stated here.

The importance of obtaining the highest duty of water is apparent when it is realized that the available water supply when fully developed will only serve a very small part of the total area of land adapted to irrigation in the arid and semi-arid region, and that wasteful irrigation has been the main cause of over 10% of the irrigated lands becoming unfit for crop production through water-logging and the accumulation of alkali salts in the surface soil.

HIGH COST, GOOD USE.—Where water is most needed for irrigation it is generally most valuable, and if the payment for this water is based on measurements of the volume delivered to the irrigator the water will be used with care and skill, which will make the duty high. On the other hand, where water is plentiful and cheap and sold on a flat charge per acre, or where the irrigator is protected by a water right which entitles him to an excess of water, there is no incentive for economy in the use of water, crude and wasteful methods of irrigation prevail and the duty is low.

In the Riverside district in southern California the gross duty on 9000 acres of land irrigated by the Riverside Water Company's system averaged for a period of seven years a depth of 2.3 feet.

As compared to this the average gross duty for the arid region as obtained by the Irrigation Investigations of the U. S. Department of Agriculture is about $4\frac{3}{4}$ acre feet per acre for all crops.

LOSSES OF WATER.—The losses of water which produce a low duty are:

1. The loss which occurs by seepage and evaporation in the conveyance of water in canals.
2. The loss by deep percolation into the soil.
3. The loss of soil moisture by evaporation.
4. The loss of water by surface run-off or waste at the ends of fields or furrows.

CONVEYANCE LOSSES.—In a new canal system of unlined earth canals the water delivered to the farms is probably not more than 40% of the water diverted. For old canals in good condition the efficiency may be increased to 65 or 70%.

In 73 ditches in the Western States the average loss per mile of ditch was found to be 5.77% of the entire flow. Large canals in general lose less in proportion than small ones. The conveyance losses are due to evaporation as well as percolation, but contrary to a common belief, the losses by evaporation from flowing water in a canal are insignificant when compared with those of seepage. The average daily evaporation for the irrigation season will generally not exceed about one-fourth inch per day, which is from 25 to 75 times less than the rates of seepage losses.

The greater proportionate conveyance loss of water for small canals than for larger areas shows the economy in water to be gained by adopting the practice of

rotation for the operation of the smaller laterals at least and by planning the systems so as to shorten as much as possible the mileage of smaller ditches.

EFFECT OF DIFFERENT LININGS.—A good oil lining, constructed with heavy asphalt road oil, applied on the ditch sides and bed at the rate of about 3 gallons per square yard will stop 50 to 60% of the seepage. A well constructed clay puddle lining is as efficient as a good oil lining.

A thin cement mortar lining about 1 inch thick, made of one part cement to four of sand, will prevent 75% of the seepage.

A first-class concrete lining, 3 inches thick, made of one part of cement to two of sand and four of gravel, will stop 95% of the seepage.

The cost of an oil lining is about one-half cent per square foot (in California). Cement mortar lining 1 inch thick costs about 3 to 4 cents a square foot. Cement concrete 2 inches thick costs about 6 cents, and 3 inches thick about 8 cents a square foot. These prices do not include the trimming and preparation of the ditch before the lining is put on, which would add from $\frac{3}{4}$ to $1\frac{1}{2}$ cents per square foot.

An oil lining stops only a part of the seepage losses, and while it will resist erosion well, it probably will not prevent the growth of weeds for more than one season unless a high velocity is used, and it will not stop the activities of burrowing animals.

Clay puddle will not prevent the burrowing of animals and weeds grow rapidly, especially since the velocity of the water must be small in order to prevent the eroding or washing of the lining.

ADVANTAGES OF CONCRETE.—The feasibility of using concrete linings will depend on the extent and value of the water loss and on the necessity for prevention of water-logging of the land below by the seepage water. Other benefits are the decreased cost of maintenance and operation and the greater safety. There are no weeds to contend with, no breaks to mend, and consequently the cost of patrolling is largely eliminated.

It does not require a large loss nor a very high price for water for this annual value to represent the interest and depreciation on a capital sufficient to put in a first-class concrete lining.

LOSS BY DEEP PERCOLATION.—This loss is largely dependent on the distance the water is run over the field or in the furrows, and on the volume or head of water used. This loss may be much decreased, if not entirely prevented, by proper irrigation practice, using frequent light irrigations instead of heavy irrigations.

Experiments carried on in a southern California citrus grove, irrigated with furrows 660 feet long, showed that the upper end of the furrows the water had percolated down to a depth of 27 feet, while for the lower half of the furrows the depth of percolation was only about 4 feet.

To decrease the loss by deep percolation the remedy is to divide the field or orchard into short furrows or runs, the length depending on the character of the soil, and to run the water more quickly in the furrows or over the fields by using larger heads, especially for porous soils. This will usually require the practice of rotation, at least for the smaller farms or orchards, which has the added advantage of decreasing the conveyance losses and of shortening the length of time involved in applying the water.

It is probably safe to assume that the loss due to deep percolation will average no less than 25% of the water delivered to the farm.

LOSS BY EVAPORATION.—The average of

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the results obtained at six stations of the irrigation investigations of the U. S. Department of Agriculture shows that for soils receiving a 6-inch depth of water on the surface the evaporation loss for a period of 30 days was 2.12 inches for soils not cultivated after the irrigation, and 1.58 inches for soils cultivated three days after irrigation. Cultivation caused a saving of 25% of the loss.

Where the water is applied in furrows the loss by evaporation can be further diminished by using deep furrows, which do not wet the surface to the same extent as shallow furrows or surface flooding, thus permitting cultivation soon after the irrigation.

CONCLUSIONS.—These losses when assembled indicate that for an average system the conveyance loss may be fully 40% of the water diverted, and of the amount delivered 25% or more may be lost by deep percolation, 25% may be lost by soil evaporation, and 10% lost by surface run-off; the total of these losses would be 76% of the water diverted.

By adopting the means of conservation which have been used successfully in irrigated districts where water is valuable, the waste and loss may be so decreased that the water supply will serve two or three times the area served with the irrigation methods now prevailing in many sections.

Irrigation Before Sowing.

The great advantage in the case of many field crops of getting water into land by tillage and afterward holding it there by conservation-culture is forcibly set forth by H. W. Campbell, the dry-farming apostle, who has spent much time on this coast of late and has made some very true observations. The following is the way Mr. Campbell puts it in his Scientific Farmer:

During the past two months we have spent almost all our time among the farmers of the Pacific coast, who irrigate not only the grain crops generally, but cotton (in the Imperial valley), and fruit, which is the principal product, no dependence whatever being placed on rainfall. Close observation has brought out the fact so common in the Central West (in fact it is still true, with some marked exceptions, all over this continent), that the average farmer is not altogether too content to continue along the same old way, without observation and careful thought. He makes good money when the seasons are just right and prices for his commodities happen to be good. Then, when conditions are a little wrong, he is likely to fold his arms and simply hope that nature will do more for him next year.

DANGER OF WATER-LOGGING.—In farming under irrigation as well as farming without irrigation the great object and effort should be to supply the proper percentage of water to the growing plant, shrub or tree at all times. Too much water is just as serious as too little water. There are two errors apparent among the average irrigators everywhere, first a tendency to over-irrigate while the crop is growing. This results in filling the soil with water, shutting out the air, and as long as the soil is fully saturated the plant not only does not thrive well, but soon begins to deteriorate, and the longer the soil is kept saturated the more unhealthy does the plant become. Second, neglect to cultivate after irrigation. Cultivation after irrigation is of vital importance, in short, there is no way of holding in the soil the proper percentage of water except by placing a mulch of loose dry earth over the surface.

Too Much of a Good Thing Not Good.—It is not a question alone of water for the plant or tree to drink, and even if it were, to turn on water and soak the land and then to leave the surface in that compact condition, results only in drying out the soil, causing the plant to suffer. Water is not the only necessary element in plant growth, yet all the other elements are unavailable when there is a shortage of water. Water is the connecting link for all other elements in plant life; in short, it brings into active life the dormant elements of the soil when it is held there in proper quantities, but when water is supplied in over-doses it drowns out and smothers practically all micro-organic life. Water when held in proper quantities in

the soil is not only drink for the plant, but it is the vehicle that carries all food to the plant. Water is the base of all chemical action that is necessary for the liberation of plant foods in the soil, but only when held there in just the right quantities. The soil must not be over-saturated, neither should it be depleted of moisture by evaporation to too low a degree. Air in the soil in ideal quantities is just as vital as the water. Too much or too little of either throws the condition out of balance and retards the liberation of plant food, causes an unhealthy condition for the plant, thereby checking its growth.

With the above explanation the reader must more fully appreciate the reason why we put so much stress upon the two danger points of over-irrigation, and the loss of this water where no cultivation is applied.

IRRIGATING-UP.—In some of the newer sections of the Pacific coast we are surprised to find it so common a practice to irrigate crops up. This we found very prevalent in some localities, especially in the Imperial valley, where the soil is almost entirely a silt and sediment deposit, for many feet down. The common practice here, as well as in some parts of Nevada, where a similar soil prevails, is to plow, disk and harrow the land when dry, sow the grain in the dry soil, then turn on the water, soaking and settling the land. This tends to dissolve the soil and settle the numerous fine moist particles closely about the seed, obtaining an ideal condition for quick germination. But here the favorable condition stops. This fine compact condition aided by the hot sun soon pumps the water from the seed bed, and in this process of capillary movement of the water to the surface the soluble or dissolved salts of the soil are left in solid form at the surface, shutting out the air. Now, with depleted moisture and reduced air in the seed and root bed, growth is slow and a sickly plant is the result.

IRRIGATE BEFORE PLANTING.—After the land is fitted, irrigate; then as soon as the top is dry enough so that it can be cultivated, go over it with some kind of a tool that will thoroughly loosen from two and a half to three inches of the top soil. Then with a drill put the seed in the top of the firm moist soil. Under this condition quick germination will be followed with rapid growth, and no further irrigation will be necessary until the foliage of the plants will completely shade the land. Every possible effort should be put forth to get the water deeply into the soil before planting.

A dry silt soil is very slow to take water. Close observation of the soil in the Imperial valley at a point where the Colorado river made its deep cut of nearly thirty feet, when by accident its course was changed from the Gulf of California over into the Salton sea, we observed

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numerous strata of extremely fine silt. For water to pass through these strata requires much time.

How to Do BETTER.—To overcome the above difficulty of too small a supply of moisture at seed time, for best crop results and to do away with the necessity of so much irrigation in the heated part of the season, we would urge at least two irrigations, better still, three, before planting.

First, disk the land, then irrigate about half to two-thirds the usual amount. Just as soon as the surface is dry enough so that the soil will not stick, go over with the disk harrow and lap one-half, setting the disk at full angle. Then let the land set for a week or ten days, to permit the water to percolate and become distributed down as far as it will go. With the loose mulch established by double disking there will be very little loss by evaporation; now follow with another heavier irrigation, then as soon as the surface is again dry, disk again. Wait a few days and then plow a good depth, followed with another irrigation. This time you will find that the soil will take more water. Then, as soon as the top is sufficiently dry, loosen the surface with harrow or cultivator to a depth of about two and a half inches. This will make better than a three-inch mulch. Then drill your crop, placing your seed about one inch into the firm, moist soil below. Then watch results.

The nearer you can come to growing a crop without irrigation after the seed is put in the better the results will be. This plan will not only keep up the necessary supply of moisture longer, but the same water thus supplied will produce more pounds of growth than when supplied after seeding and during the growth of the crop.

THAT WEARY WATER.

In contrast with the old time in California when water from mountain snows ran to the ocean with nothing but natural hold-ups to slow them down, comes the official declaration of the Geological



PERFORATED TREE PROTECTORS

TO CITRUS GROWERS, if the recent frost has caused the leaves on your young trees to drop so they will not protect the body from the hot sun, which will spoil a good many of them if not protected, let us supply you with wraps for them. Others are going to do it, why not you? You can't afford to let your trees go unprotected when for about a cent each you save all of them.

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Survey concerning the barriers which irrigation has interposed. In "Water Supply Papers" of the Survey No. 234 this occurs:

A part of the water of the Santa Ana river in southern California is stored in a reservoir in the San Bernardino mountains and the flow of the stream is thereby regulated. After it escapes from the reservoir it is diverted through a power plant and electric power is generated. Below this power plant it is rediverted and passes through a second power plant. Below this it is all distributed and used for municipal purposes and irrigation about Redlands and Highlands. The waters that return from the irrigation are recovered in springs and flowing wells and by pumping plants, a portion of the power developed higher up on the stream being used for the pumping. This recovered water is used for irrigation about San Bernardino and Riverside. A part of it reappears in the river above Riverside Narrows, where it is again taken out into a power ditch, whose waters are returned to the river above Corona. A few miles below it is picked up by canals and distributed to the orange and deciduous groves about Anaheim and Santa Ana. The portion of it that returns there, by irrigation, to the ground water is once more recovered by the many pumping plants and flowing wells west of Santa Ana.

A single drop of water in its progress from the mountains to the sea, a distance of only 100 miles, may thus be used eight times for power and irrigation.

COL. HERSEY'S EVERLASTING PLOW BEAM.

Col. Philo Hersey, of San Jose, gives the Western Empire this interesting experience:

In plowing my extensive prune orchards (which contained stumps and large roots) it has been my practice to use extra large steel plows drawn by four heavy draft horses. Up to a quarter of a century ago, it was not unusual for us to snap off an oak plow beam every day or two; the sort we get from Eastern factories. Being advised by the manager of the Farmers' Union to try eucalyptus, I had a plow made of San Jose blue gum from the Gillespie Mill in San Jose.

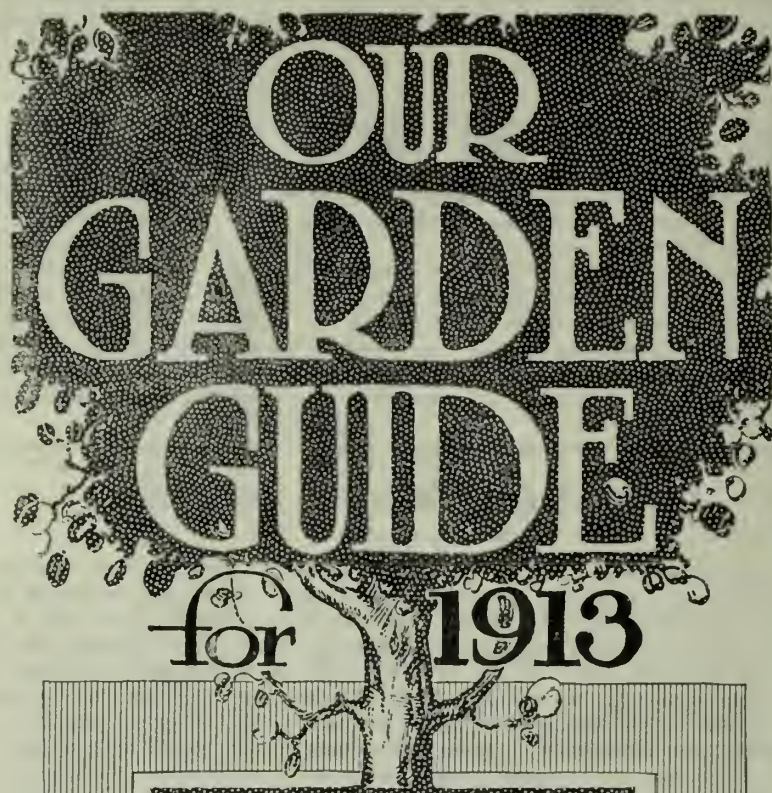
This was twenty-four years ago. It never decayed, though exposed to rain and sun; never wore out, and never broke; but whenever we struck a stump it would stall the four-horse team.

I used the same beam till recently, and wore out under it the steel plow and other parts, till it was like the Irishman's knife—all the other parts had been repeatedly replaced, but it was the same old plow still. And after nearly a quarter of a century of use it is still as strong as ever.

In Maine I used to employ hornbeam, ash, etc., but these are inferior to California-grown blue gum. Even when exposed to all sorts of weather, I found it immeasurably superior to all other hardwoods.

It is dense of fiber and takes the prettiest polish of any wood we have, presenting a finished surface like polished steel. If mirrors had been in demand at such an early date, I should think that Adam and Eve, in the Garden of Eden, might well have used a polished eucalyptus plank as a mirror.

[This would indicate that Col. Hersey thinks the Garden of Eden might have been in Australia, as the eucalyptus is native nowhere else on earth. Besides, if Adam had made his eucalypt into a plow beam instead of a mirror to awaken vanity in Eve, he would have saved his descendants a lot of trouble both with plow beams and women.—EDITOR.]



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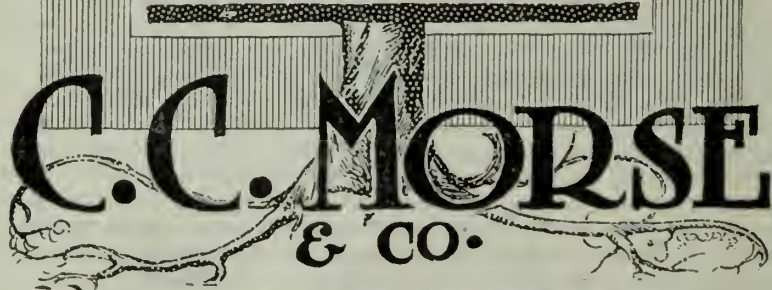
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Water Problems Association.

A short time ago the San Joaquin Valley Water Problems Association was formed at Fresno by representatives from all parts of the San Joaquin valley who were interested in improving conditions of irrigation in the valley. We wrote to John Fairweather, president of the Association, for a statement regarding what the Association hoped to accomplish, and have to thank him for the following outline:

To the Editor: The main purpose of the San Joaquin Valley Water Problems Association is to get the whole valley interested in its water problems. This is a great and a grave question, but by getting together in a spirit of doing and dealing justly with all interests, we may be able to amend our laws, change the rules of evidence in these water problems on riparian rights, increase appropriations, and help all users of water in this valley, also obtain amendments in the Irrigation District law that will bring the State itself into closer touch with the irrigation system, that will make its bonds more and easier marketable, in other words, make irrigation district bonds a thing to be desired by investors of money. The bonds should be in every way safe and desirable as any county or school bonds are, but today they are not, and we hope they will be.

New problems are constantly arising, and if this valley or any part of this State is to have a fair share in any development of its water problems, and if the many thousands of acres in this valley now dry are to be made productive by co-operation with the Federal Government by the Reclamation Service, or if it is to get its proper share of the \$50,000,000 annual appropriation for ten years as proposed in Senator Newlands' bill now before the United States Congress, we must get together to aid and help one another, and especially be prepared to aid any part of this great section of the State that takes hold to help themselves under the provisions of those laws. The reclamation law we have, the Newlands law we will have, and under a fair division the Pacific Coast will be entitled to \$5,000,000 a year for the ten years of its life.

Again, amendments are being introduced in our State legislature to amend our water laws and to establish new conservation laws. We believe these things need careful scrutiny by all sides principally affected, and this Association is going to look carefully into all these propositions.

The General Board of Army Engineers has agreed to provide one-half the cost of a comprehensive survey of the San Joaquin river from its mouth up the valley (we might say to Tulare lake), with all its tributaries, to show us and prove to all interests the capabilities and pos-

sibilities of all the waters of every stream entering into this river by storage of the flood-waters to provide for irrigation, and the possibilities of river navigation by a canal.

This is a great work and will cost about \$65,000. There is only one way to get the other half, and that is by a concerted action of all interests in this great central part of California getting together to get the State legislature to appropriate it, and this is a part of the work this Water Problems Association is going to do. These are some of the things we are after, and we believe we will succeed. We believe this part of the State certainly is entitled to this small appropriation, as the Sacramento river valley was granted \$400,000 for improving that river four years ago.

JOHN FAIRWEATHER.

Fresno.

President.

GOVERNMENT WHITEWASH.

Some readers have just experienced an awakening on this subject and in answer to their requests we undertake republication:

The U. S. Government receipt for an enduring whitewash is as follows: "Take a half bushel of unslaked lime, slake it with boiling water, cover during the process to keep in steam, strain the liquid through a fine sieve or strainer, and add to it a peck of salt, previously dissolved in warm water; three pounds of ground rice boiled to a thin paste and stirred in while hot; half a pound of Spanish whitening and one pound of glue, previously dissolved by soaking in cold water, and then hanging over in a small pot hung in a larger one filled with water. Add five gallons of hot water to the mixture, stir well and let it stand for a few days, covered from dirt. It should be applied hot, for which purpose it can be kept in a portable furnace. The east end of the President's house in Washington is embellished by this brilliant whitewash and it is used by the Government to whitewash lighthouses. A pint of this mixture, if properly applied, will cover a square yard, and will be almost as serviceable as paint for wood, brick or stone, and is much cheaper than the cheapest paint."

This is the original Government receipt. D. D. Bowman, Felton, last year wrote to the PRESS, stating that with his experience the salt had better be reduced from a peck to seven pounds of salt for every half bushel of lime. Care has to be taken in the selection of lime, which has to be of the very best.

This whitewash gives excellent protection for young trees.

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Main Office

FRESNO, California

White Fly Quarantine.

[By A. J. Cook, State Commissioner of Horticulture.]

In view of numerous letters of late, most of them commendatory, a few critical, I wish to make a brief explanation of our recent modification of the South Atlantic and Gulf States quarantine.

We have three principles which will guide us inflexibly in all decisions and which must please our fruit-growers and all Californians: First, we will always make it our rule to safeguard the interests of our own people; secondly, we will always do justice to those outside the State and aid them if we can after our own safety is assured; and, thirdly, every important action will be determined by our cabinet, six earnest, capable men, who are favorably known and honored by all well informed men the country over. Thus it will be rare that we shall err.

When I assumed office over a year ago, there was a very stringent quarantine against Florida and Louisiana to protect

California against the white fly, a very serious citrus pest. Last year we received this white fly on shipments from two other South Atlantic and Gulf States. I then made most careful inquiry from the Agricultural Experiment Stations of the several States and the U. S. Department of Agriculture, and learned that the citrus white fly was in all the border States from North Carolina to Texas, inclusive. I, therefore, at the request of the county horticultural commissioners, extended the quarantine to these States.

In the meantime I was investigating the justice of our order in excluding all plants, seeds, fruit, etc. I found from such authorities as Dr. Marlatt of the U. S. Department of Agriculture, Mr. Maskew, who has had possibly as much experience and observation in the white-fly campaign as any man living, Dr. Morrill, who studied the fly so extensively in Florida, and many others, that there was no danger in introducing other than host plants, especially if these were defoliated; that the fly was never on fruit. Hence we modified the order, quarantining only the host plants. Fruit is not a plant, nor a host of the fly, so there is no reason or excuse for an embargo on the fruit. This new order is surely right, and we shall stand resolutely by it, unless we gain new light which may make a change desirable. We must protect our own people always. We must also be just to all others.

A. J. Cook,
State Commissioner of Horticulture.

SPRAYING WITH NITRATE OF SODA.

Last fall we recounted some remarkable results that had been secured by spraying apple trees in the early spring with nitrate of soda. It will soon be time again for the spring spraying, and as wide a trial of this matter should be made as possible. Much interest is shown in the subject, as our correspondence shows, and we repeat the statement.

These experiments were conducted by Horticultural Commissioner Volck of Santa Cruz county, and by Mr. Ballard of the U. S. Department of Agriculture. A number of apple trees were sprayed with a solution of one pound of nitrate of soda to a gallon of water, just as the buds were swelling. The trees previously had been unthrifty and poor producers. That summer they bore a heavy crop and were in much better condition at the close than unsprayed trees.

Nothing can be said as to the reason for this result, nor is it certain that it will occur again. Yet the marked results should cause a wide spraying this spring of unthrifty trees of all kinds, or on trees that refuse to set fruit, as the cost of spraying in this way is very little and the possible results great.

These apple trees had no other spring spraying. To the 200 gallons of water in the tank was added 200 pounds nitrate of soda and 40 pounds caustic soda, the latter to make the nitrate stay on the bark. It was clearly demonstrated that the benefit was not due to the taking up of the nitrate by the roots, and to try out the matter elsewhere, some nitrate of soda should be applied to the soil around the unsprayed trees and a number of the trees left unsprayed. The wider the trials the better.

Possibly, if trees are to be sprayed with lime-sulphur, it would be worth while to put a few pounds of nitrate of soda into a tank or so to see if it would have a beneficial influence, although the lime-sulphur itself is supposed to be an excellent bark stimulant.

1913

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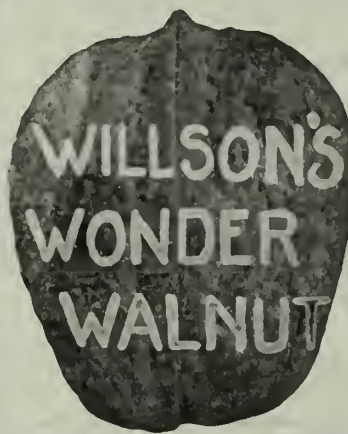
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THE EARLIEST HEAVY BEARER.—The original tree, now 11 years old, has borne 9 successive crops. Trees now 5 years old have borne 5 crops of nuts (6 years from grafting).

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will do well to obtain our quotations before buying elsewhere.

Haas, Baruch & Company

LOS ANGELES, CAL.

Olive Oil Crop in Mediterranean Countries.

Consul-General James A. Smith, Genoa, Italy, under date of December 17, reports as follows:

Reliable information indicates that the yield of olive oil in Italy for the present 1912-13 season will be about two-thirds of a normal crop. A normal yield varies from 2,000,000 to 2,400,000 hectoliters, equivalent to from 52,834,100 to 63,400,920 gallons, or say an average of 58,117,510 gallons. On this basis the crop of the present season will yield about 38,745,000 gallons, and may possibly run to 40,000,000 gallons. The yield for the past three seasons has been as follows: 1909-10, 67,601,230 gallons; 1910-11, 37,142,372 gallons; 1911-12, 65,170,862 gallons.

The short crop of this season is largely due to the ravages of the "mosca olearia," or olive fly, which has attacked the larger part of the centers of production. The abundant yield of last season and the consequent fact that dealers have still a considerable quantity of oil from that crop remaining in stock, leads to the opinion that there will be no material advance in present prices. It may be said here that a full crop of oil, such as has not been gathered in a number of years, would run between 95,000,000 and 100,000,000 gallons, a normal yield averaging about three-fifths of this. The quality of oil this season will be good, mediocre, and poor, of the latter especially in those regions attacked by the olive fly.

Reports indicate a medium crop in the southern section of Tunis, in the central part about one-half an average yield, and in the northern none. The olive fly has ravaged practically every oil-producing section of Tunis, and the quality will therefore be largely mediocre or poor.

In Spain the yield will be very small, and, compared with the abundant crop of last year, almost nothing. It is believed that the total yield will not exceed 600,000 quintals, or 15,850,230 gallons, which is

only about one-fourth of a normal crop. Everywhere the olive fly has attacked the trees and the quality, therefore, will be very poor. The stock on hand of oil from previous crops is still quite large, but said to be of poor quality, the better grades having been already sold.

The crop in Greece, it is said, will be exceedingly short. In Asiatic Turkey a medium crop is promised, but of poor quality, owing to the presence of the olive fly.

In France the outlook is for a fair crop as to quantity; not, however, up to a normal yield and of inferior quality. A normal crop in France yields 250,000 quintals, or 6,604,262 gallons. The crop in Corsica is reported to be a total failure, and in Algeria so meager as not to be sufficient for the local consumption.

LUTHER BURBANK STORY.

In order to devote his energies exclusively to the creation of new forms of plant life, Luther Burbank no longer gives time or attention to the distribution of his original creations. He is now confining himself to the working out of many remarkable originations, some of which will add increased luster to his recognized genius.

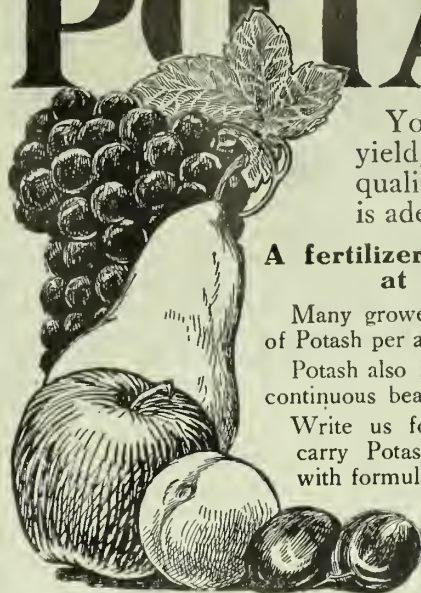
A corporation has made an agreement with Luther Burbank by which it has secured the exclusive rights to market his original productions. They are now the sole distributor of the products bearing the Luther Burbank name.

What this will mean to the world in general can hardly be estimated at this time for a great deal of Luther Burbank's working hours were consumed by attention to the details of his business against his own will. Mr. Burbank's mail has been one of the largest personal mails in the country. For many years he has tried to disseminate information concerning his creations to an inquiring world. This so cut in on his time that he found himself seriously handicapped in his creative work.

In recent years a great deal of effort was concentrated by him in the evolution of the Spineless Cactus which has now proved itself a wonderful origination both as to its horticultural oddity and its utilitarian value. From all tests and practical application, the Spineless Cactus seems to carry within itself the solution of many of the sterner problems of the age. Owing to its remarkably quick multiplication in almost any soil where even scanty vegetation will grow and the fact that it is of wonderful feeding value to the large and small cattle and poultry, progressive farmers are now basing the hope that the Spineless Cactus will eventually solve the high cost of living.

Mr. Burbank's time in the future will be mainly focused on the origination and development of horticultural productions that will add a utility in the human diet. This does not mean, of course, that he will neglect the field in which a great deal of his fame now lies—extraordinary floral modifications. The world will hear of new things from his plant laboratories as startling as his Shasta Daisy, his Burbank Potato and his Spineless Cactus. As in all his former productions, Mr. Burbank's announcements were never made until his creations were absolutely proved. Many hundreds of these productions absolutely new to mankind, and more useful and valuable than those now known, are already complete and now await introduction. Burbank is a very busy man these days, but his thought and his work are centralized in the field in which his greatness rightfully belongs.

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Your fruit is not at its best in yield, flavor, color or shipping qualities unless the Potash supply is adequate and available.

A fertilizer for fruit should contain at least 12% Potash

Many growers use annually 200 lbs. Muriate of Potash per acre.

Potash also insures strong wood and early and continuous bearing.

Write us for prices if your dealer doesn't carry Potash Salts; also for our free books with formulas and directions.

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A post card will bring you our price list and descriptive Catalogue. Your order will bring you these trees, freight prepaid, and if given proper care and cultivation, they will bring you an income that will bring you to the sunny side of Easy Street.

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High Grade Fertilizer

For Orchards, Vineyards, Gardens, Lawns.

GUARANTEED ANALYSIS shows a fine compound of sheep manure and commercial plant foods. Write for free booklet, "A Recipe for Making Gold." It gives details and instructions for using.

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Leading varieties of Pear, Apple, Plum, Prune, Peach, Apricot and Almond Trees. Grape Vines. Orange and Lemon Trees. Ornamentals, etc.

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HORSE MANURE FERTILIZER CONTAINS

Nitrogen	49
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TREES, SHRUBBERY AND RARE PLANTS
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That will Grow.
That are True to Label.
That are Free From Disease.

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Red Gravenstein

Apple Trees for Fall Delivery.

See what Prof. E. H. Van Deman says of this wonderful new apple:

"For two years past I have seen the Red Gravenstein Apple at some of the fruit fairs in the West, and among them the National Apple Show at Spokane. I have also eaten it, and it is a true Gravenstein in every particular except color. In this respect it far surpasses the old variety, because it is almost solid red and exceedingly attractive. I think this difference will cause it to sell even better than the common Gravenstein, from which it is a bud-sport."

Hanford Nurseries

CLARKSTON, WASH.

Drawer 6. AGENTS WANTED.

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A general line of Oranges, Lemons, Deciduous Nursery Stock, Roses, Shrubs, etc.

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WITH THE
DEMING THE WORLD'S BEST **PUMPS**

An ideal high pressure power sprayer, with utility engine, agitator, 200-gal. solution tank, hose, nozzles. Complete, ready for operation.

GUARANTEED

best in design, workmanship and materials. Purchase price cheerfully refunded if not satisfactory or found as represented.

SAVE

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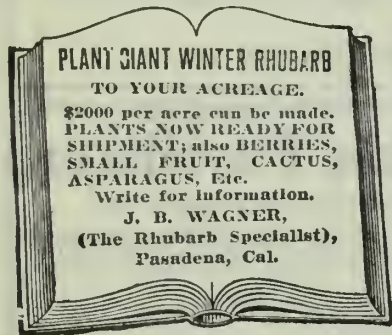
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Fruit and Ornamental Trees, Vines, Plants, Shrubs, Roses, etc. Eucalyptus a specialty. Write for price list and booklet on Eucalyptus Culture.

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All leading varieties of deciduous, citrus, grafted walnuts and ornamental trees.

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If you want FIRST-CLASS NURSERY STOCK, and want to save money, just write us; we will show you how.

We grow a full line, reliable stocks—Apples, Pears, Cherries, Prunes, peaches, Berries, etc.

CARLTON NURSERY CO.,
Carlton, Oregon.

TREES

Write for prices on all varieties of Nursery Stock.
Dollar Strawberry Plants, \$5.00 per M.
Burbank's Patagonia Strawberry Plants,
\$2.00 per 100.

UNITED FRUIT COMPANY,
Newcastle, Cal.

EUCALYPTUS

We have our usual stock of high-grade trees, to which we invite correspondence of intending planters.

W. A. T. STRATTON
Petaluma, Cal.

THE TEPARY BEAN.

To the Editor: I take pleasure in sending you a correct forecast of a new crop for dry farmers, the Tepary bean, concerning which a bulletin will soon be published by the Arizona Experiment Station and which will be introduced to the world as a new and extremely valuable drouth resistant crop.

Tucson.

CORRESPONDENT.

THE TEPARY BEAN.—In a bulletin written by Prof. R. W. Clothier, of the University of Arizona and soon to be published by the Arizona experiment station, entitled "Dry Farming in the Arid Southwest," Prof. Clothier will introduce to the world a new dry farming crop which has wonderful possibilities for the arid section of the world having a short rain period. This crop is the tepary bean, obtained from the Papago Indians by Director R. H. Forbes, of the Arizona Experiment Station, in the spring of 1909, and placed in the hands of Prof. Clothier at that time to be tested for its dry farming possibilities. Writing of this bean, Prof. Clothier says:

"After three years of experimenting with it, I am prepared to say that it is one of the most wonderful plants ever presented to the dry-farming public. If it has a growing season of 75 days it will make a fair crop, and if it has 90 days it will make a good crop. If it is struck by a drouth it will ripen the pods already set, and when the drouth breaks, it will set and ripen a new crop if it has five weeks in which to do it. In 1911, beans planted June 14 were struck with drouth July 20, after but 3.34 inches of water had penetrated the soil. The drouth continued until August 25 and was accompanied by extremely hot weather, the Fahrenheit thermometer frequently reaching a maximum of 105 to 108 degrees, and averaging 99 degrees as a maximum for the entire period.

BEANS YIELD WELL.—"Notwithstanding these adverse conditions, these beans ripened an average of 319 pounds of seed per acre during this drouth. Then, when the rains recurred, the beans again began setting pods and matured an additional 456 pounds of seeds between September 1 and October 15, on 4.97 inches more of penetrating rainfall, making a total yield of 775 pounds per acre for the season. Moisture determinations in the soil made before planting showed that there was not over 5 inches of water available for plant production in the first four feet of soil, and none in the subsoil below that depth, when the beans were planted. When we consider the extremely dry character of the atmosphere in the arid Southwest, with its consequent great power to absorb water from soils and plants, these yields under such conditions are remarkable. The pink bean, which has a reputation itself as a drouthresister, made nothing whatever during the drouth and only 100 pounds per acre for the entire season under exactly the same conditions.

AVERAGE YIELD LARGE.—"During three years of experimentation, 13 plots of one-quarter acre each of tepary beans have been grown, and the average yield on all of them has been 473 pounds per acre. Many of the plots have had extremely poor stands, and on many of them the soil was so dry at planting time that the beans remained in the ground six weeks before enough rain occurred to sprout them and bring them up. Eleven similar plots of pink beans grown during the same period averaged only 140 pounds per acre under the same conditions. Three plots of red Indian beans averaged 131 pounds; two plots of Leopard wax, 119 pounds; and two plots of Hansen beans, 107 pounds per acre.

"In 1909 only 6.71 inches of water pene-

BUG-GO EMULSIFIER

MAKES A PERFECT HOMEMADE OIL EMULSION.

As cheap as whaleoil soap and REQUIRES NO HEATING, but is delivered ready for use.

Will keep indefinitely.

May be used with either CRUDE OIL or DISTILLATE.

If crude oil is used, one gallon of the Emulsifier is enough for 200 gallons of emulsion.

If distillate is used, 1½ gallons of the Emulsifier is used for 200 gallons of emulsion.

PRICES, INCLUDING DELIVERY

In 50-gal. bbls., with 90 lbs. of caustic soda, per gal. 80c

In 5-gal cans, with 10 lbs. of caustic soda, per gal. \$1.00

In 1-gal. cans, with 2 lbs. of caustic soda 1.25

Without caustic soda deduct 10c per gallon.

To above add \$1.50 for the barrel, which is refunded when the barrel is returned.

BEAN SPRAY PUMP CO.

211 W. Julian St., SAN JOSE, Cal.

trated the soil during the growing season, and only 0.89 inch had penetrated it since. August of the preceding year, tepary beans averaged 467 pounds per acre with a poor stand. In 1910 the total water penetrating the soil during the growing season was 9.34 inches, and the soil had received no water other than this since the preceding August. Tepary beans averaged 340 pounds per acre with extremely poor stands in that year. In 1911 a small amount of rain had penetrated the soil since the preceding August, but it had all dried out at planting time. The penetrating rain during the growing season was 8.31 inches. Four plots of tepary beans averaged 527 pounds per acre on this rainfall, while two plots that had 2½ inches of irrigating water added to the soil two months before planting time, averaged 774 pounds per acre. Pink beans averaged 97 and 100 pounds per acre, respectively, under similar conditions. These yields certainly give this new crop an enviable place among the dry-farming crops of the world.

DIFFERS FROM OTHER BEANS.—"The plant is entirely different from the common cultivated varieties of beans. The chief differences appearing to the layman are a small wiry vine and long narrow leaflets. The botanist finds other differences which need not be discussed here. Prof. G. F. Freeman, of the Arizona Experiment Station, who began investigations with this bean in 1910 after the writer had grown it one year by dry-farming methods and Director Forbes had demonstrated its value as an irrigated crop, has written a botanical description of it in Bulletin 68 of the Arizona Experiment Station. He identifies it as Phaseolus acutifolius, described by Asa Gray, and suggests the name 'latifolius' for the variety we have under cultivation.

"The plant grows wild in mountain valleys and canyons of southern Arizona and northern Mexico, and was no doubt domesticated by the Indians in prehistoric times. In the words of Director Forbes, 'It comes to us as a bit of the wreckage of an ancient agriculture drifting down from remote and unknown times.'

ANOTHER CHAPTER ON GAME LAWS.

H. H. Lyon of Chenango county, New York gives the Rural New Yorker a showing of the relative values of coons and farmers as follows:

My nearest neighbor on the west has recently been arrested for killing a 'coon.

APPLES!

Large stock, varieties adapted to California—Banana, Pearmain, Belleflower, Rome Beauty, Jonathan, Stayman Winesap, etc. Write for prices, stating quantity.

PEARS AND APRICOTS.

Scarce this year, but we have a good stock. Strong trees, \$25 per 100.

CHERRIES, PERSIMMONS AND QUINCES.

Money in all of these, \$15 to \$22 per 100.

GRAFTED WALNUTS.

A few hundred Placencia left. Order quick.

VALENCIA ORANGES AND EUREKA LEMONS, NOT FROZEN.

Everything else in fruits. Everything else in ornamentals. The oldest nursery in Los Angeles County.

Write for our price list.

PIONEER NURSERY

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FRUIT TREE BARGAINS

Nonpareil, Ne Plus Ultra, I.X.L., Drakes Seedlings, Texas Prolific, Hungarian, Silvers, Imperial, Goldendrop, Bartletts, Cherries, Walnuts, and Figs.

Special prices on application.

Order quickly.

A. J. GALLAWAY,
Healdsburg, Cal.

In common with the rest of us he has lost heavily by the depredations of animals of one sort or another that have visited his chicken yard. It happened that one morning in September, my neighbor found two 'coons in a tree near his chickens. Calling to a neighbor who resides near, to come and help he proceeded to kill the 'coons. Nothing in particular was thought about the matter for some time until one day when the family came home they found the skin of one of the 'coons missing. Soon after a game officer who resides in the village called up and demanded \$25 from each of the neighbors for killing 'coons out of season. For some days and perhaps for weeks there were discussions and messages as to fines, until finally the officer agreed to settle for \$5 each, mindful undoubtedly of the half of the fine that would come to his own pocket. One of the men paid the money rather than have any trouble or expense in the matter. The other man did not believe it right to pay a fine, however small, for protecting his own property on his own premises, and he refused to pay. Then the officer, acting as it appears under the directions of the State Conservation Commission, made the arrest and held the trial. My neighbor was convicted and sentenced to pay a fine of \$10. A stay was granted to allow the attorney to look up laws further to see if it is possible to win on an appeal.

Now this is a pretty pass. The idea that farmers must submit to all sorts of injury and annoyance just to accommodate a set of fellows from city and town who have secured laws to meet their own notions is wrong. This farmer has lost well towards a hundred chickens. He had tried all summer to catch the destroyers, and finally succeeded. As the attorney said, if a man went into a hen house and molested poultry the owner had a right to shoot, but if a 'coon gets in there he must not be disturbed. 'Coons, skunks and the like are "protected," but not so with chickens, cows and men. Hunters roam over our farms, and every now and then they shoot down a fine heifer or cow, but they are never caught. The present condition must be stopped in some way and it is high time the laws were amended if a man cannot protect his property. It is said if a man finds some animal in his henhouse he must go or send to the Conservation Commission for permission to drive it out or kill it. This is according to the strict wording of the law. I suppose that my neighbor was fined really because he took off the hide of the 'coon and hung it up. But tell me what harm that did after the animal was dead.

Raymond Torrey and J. W. Crane have started a plant for the manufacture of concrete irrigating pipe near Riverbank, Stanislaus county.

Luther Burbank wants the People of California to have the profit of his fruit and berry creations.

It is now possible for you to get some of these and grow finer, better and larger fruit than ever before and add still greater fame to the name of California.

Unprofitable orchards of peach, almond and plum trees can be changed in one season to the most profitable ones by using grafting-wood on the old trees.

Grafting-wood is sold at the rate of four feet for the price of a single tree of the variety desired.

Ask for some of the following varieties:

The New "Burbank" Cherry

This is the earliest of all large cherries. It is the largest of all early cherries. It is the best of all early cherries and unsurpassed by any cherry of any season.

The "Burbank" cherry sold at wholesale in the Eastern states for \$15.00 per ten-pound box; \$7.50 per ten-pound box in carload lots; in Philadelphia \$31.00 per ten-pound box was paid—\$3.10 per pound wholesale.

If you like cherries, this is the cherry you should have.

The trees are model in form, vigorous and never-falling producers. The foliage is of unusual size and is so placed that the fruit is fully protected from birds and cracking by late spring winds.

A few one and two-year trees, \$1.50; ten for \$10.00.

You should have one of each of these three plums in your garden. Notice the ripening dates. "Beauty" ripens from June 25th to July 1st; "Gee-whiz" ripens from July 25th to August 10th; "Pasha" ripens from August 10th to the 20th.

The New Plum "Pasha"

A true home garden plum. It ripens in August from the 10th to the 20th; remarkable for size and productiveness.

The fruit is 7 to 7½ inches in circumference, oval shape, light crimson color; the flesh is yellow, rich, juicy and sweet. It is a freestone plum.

It is not a shipping plum, but it is the ideal plum for the home garden.

Prices: trees, each \$2.00; two for \$3.50; for ten, \$15.00.

The New Hybrid Plum "Beauty"

A never-failing bearer of full crops of the most beautiful oval, crimson fruit—2¼ inches in diameter.

It is the largest of early plums and is good for shipment to Eastern markets. It has a remarkably tough skin, and when packed green, keeps well, colors up well and develops a delicious flavor. Ripens from June 25th to July 1st.

Prices: trees, each \$3.00; two for \$5.00; for ten, \$20.00.

The New Hybrid Plum "Gee-whiz"

No plum now known surpasses this plum in quality.

The fruit is globular in shape, two inches in diameter with a crimson blush with numerous crimson dots on yellow ground.

It is quite hardy. Ripens from July 25th to August 10th.

Prices: trees, each \$2.00; two, \$3.50; for ten, \$12.00.

The New Stoneless Prune—"Conquest"

The labor and expense in experimenting among thousands of seedlings has been the result of one early good stoneless prune.

The stone has been eliminated wholly, with the exception of a tiny speck. The fruit is so valuable and the tree so productive that Mr. Burbank has consented to its introduction this season. It is

very much like the French prune in size, quality and appearance. Prices: trees, \$2.50 each; two for \$4.00; ten for \$15.00.

The New "Giant" Crimson Winter Rhubarb

This rhubarb will produce marketable stalks abundantly fully six months earlier than any other rhubarb. Think of being on the market with your product so much sooner in advance of your competitors.

The quality of this wonderful new rhubarb is very much superior to any of the older kinds. It has a pleasant taste of berries instead of the coarse ground taste and the tough green, stringy stalks of the old kinds.

Under good culture, stalks two or three feet long and one or one and one-half inches thick can be produced—and produces fully double as much per acre as the old, coarse kinds—the main crop comes during the holidays—just at the time when all other rhubarb is out of business.

This new rhubarb is not profitable where Eucalyptus, the orange and the fig cannot be grown.

Prices: selected plants, 50c; ten for \$4.00; one hundred for \$30.00.

If you really think of getting some of these varieties do not hesitate but place your order right now.

The demand is so great that it is a question of how long the supply will last.

Make reservations at once so that you will be able to get what you want.

Send for nursery catalog marked B.

It gives more detailed information than is given here, with much better descriptions.

Send for Spineless Cactus Catalog

Send for Flower Seed Catalog

This corporation, The Luther Burbank Company, is the sole distributor of Luther Burbank's Horticultural productions, and from no other source can anyone be positively assured of obtaining genuine Luther Burbank creations.

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OUR Trade Mark and Emblem tells the story. When you buy of us you get what you buy. Headquarters for all kinds of Fruit Trees, Grape Vines, Fig Trees. We are Fig Experts. We can supply Calimyrna, White Adriatic and Black Mission Fig Trees by the carload. 40-Page Illustrated Catalog Free. Send us a list of your wants for prices. Our references are Thousands of Fruit Growers in California and the West. Address:

The Fresno Nursery Co., Inc. Box 615, Fresno, California

The Millbrae Dairy.

[By Our Associate Editor.]

The Millbrae Dairy is one whose business it is to provide San Francisco consumers with a uniform supply of market milk. Like a large proportion of dairies producing market milk for the bay cities, it is located where climate or situation makes it necessary to purchase a large proportion of the food consumed by the cattle. The ordinary dairyman who has an abundant supply of alfalfa at all times knows how the purchase of hay and concentrates eats into the profits. The problems, therefore, confronting the management of a dairy where not only most of the concentrates, but also a great part of the hay has to be purchased can be imagined.

This dairy was the property of the late D. O. Mills, one of California's earliest citizens and one of San Francisco's most prominent business men. The land where the dairy is situated was purchased in the 50's at a time when no one dreamed

that it would ever be within such easy commuting distance of San Francisco that business men in a half hour or so after leaving their homes could reach their offices. The 1,800 acres purchased were mostly hills like those all along the San Francisco Peninsula down through San Mateo county and nearly all that was not hills was marsh land, covered by the tides.

Soon after the land was purchased the dairy was started in partnership with A. F. Green, who also owned much land in the vicinity. This partnership or other business relationship connected with the management of the dairy and the distribution of the milk in San Francisco continued until the late 80's. Since that time the dairy was owned and managed only by Mr. Mills or his heirs. For practically the whole period since 1887 the resident management has been under J. C. Robb.

CATTLE.—From the earliest days the dairy has had a reputation for the kind of cattle that were kept. The foundation stock was the common red cow, with lots of Shorthorn blood. Good bulls were always kept and all poor stock was weeded out. Until something over a dozen years ago there was no special effort to specialize on any one dairy breed or to keep pure bred stock. At that time a few pure bred Holsteins were purchased, which have been gradually added to by natural increase and purchase until now the pure bred number about 60 milking cows. There are also about 300 grades, only a few of which, purchased within a year, are anything but high grade Holsteins.

The bulls for all of these cows have been Holsteins. The herd bull at the start was Sarcastic Legislator, grandson of Sarcastic Legislator. He gave such satisfaction that he is still kept, although there are so many of his daughters in the pure bred herd that there is not much use for him, and another pure bred bull, Sir Inkra Alcatra, heads the herd. There are also 10 or 12 other bulls kept from the pure bred Holsteins in the dairy for use in the grade stock.

The breeding up of the grade herd by use only of pure bred bulls and by a rigid selection of the heifers has made the herd one of the finest in the State. A uniform supply of milk is produced at all times of the year. It runs about 950 gallons per day, the amount produced within a few pounds the day the writer visited the dairy, from about 300 cows milking, 50 cows being dry. The pure bred averaged at that date 33.53 pounds and the whole herd 28.03 pounds.

Besides the milking and dry cows there are about 150 head of young stock, heifers and pure bred bulls, kept continually on the ranch. The large amount of hill land gives pasture for this young stock after they are old enough to look after themselves, though they often have to be fed extra also. On account of deciding to increase the size of the herd a year ago a number of grade cows were purchased, otherwise, all have been raised on the place from selected grade cows and pure bred bulls.

The principle of improvement aside from breeding is good care and selection. The milk of every cow is weighed once a month and tested often enough to give a good line on the total amount of butter fat produced. That makes it that only good producers are kept.

The health methods are just what has been advocated in these columns, good care and the removal of any cow that shows signs of ill health. The tuberculin test may occasionally be used on a few cows in cases of doubt, but from long experience it was found that cows temporarily indisposed were often condemned as tubercular from the test when

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The perfect milk substitute—the best since 1800. Write today for free book, "How to Raise Calves." Your name and address on a postal is enough.

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SHARPLES TUBULAR CREAM SEPARATORS

and with these three we guarantee Tubulars to skim 50% closer and to continue to skim 50% closer than any other separator made.

THIS BEING THE CASE—

Why should you have to wash up seven times this many pieces—twice a day?

That is a question that is easier to ask than to answer.

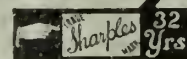
There has never a claim been made for Sharples Tubulars that could not be proven;—there has never a machine left our Factory that was not guaranteed *Forever*.

Mark that—not merely a year, or two years—or even five—but *Forever*. Look into these features before exchanging your old separator, or at the time you decide that there's money in selling the cream and keeping the skimmed milk on the farm.

Write for our interesting Catalog 131 and arrange for a Free test right under your own roof. The people who ask questions are the ones who buy Tubulars.

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Don't sell your barren cow to the butcher. She can be made productive and profitable by the use of KOW-KURE, the great cow remedy. Cow owners by the thousands have doubled the value of their cows by making them prolific breeders.

KOW-KURE is a medicine for cows only, and is a positive cure for all ailments peculiar to cows—ABORTION, SCOURS, MILK FEVER, LOST APPETITE and other affections that make cows sickly and unprofitable. It will keep well cows in the best of health and prevent disease. Healthy cows produce more and better milk and require less care. Send today for our free book, "More Money from Your Cows." It gives a world of valuable information that every farmer and dairyman ought to have.

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FOR SALE:

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The only Bull three times
Grand Champion at the Fair.

Fifth Annual Sale of High Class Hereford Cattle

KENTLAND, INDIANA, FEBRUARY 26, 1913.

25 Bulls. Rare Breeding and Quality.

50 Cows and Heifers. Show Yard Quality.

Now is the time to begin to prepare for the great Panama Exposition. 20 of the bulls are Sons or Grandsons of the Great Perfection Fairfax. All cows of breeding age bred to my celebrated Herd Bulls. Send for catalogue. Mention this paper. If you can't come, send your orders to Sec'y. R. J. Kluizer, John Lethum, or the undersigned, and you can rest assured you will receive a square deal. I would indeed be pleased to hear from anyone interested.

WARREN T. McCRAE, Prop. Orchard Lake Stock Farm.
JAMES HENDRY, Mgr.

an autopsy would show that they were in first-class condition and such cows, when kept and given good care remained as healthy and vigorous as any others, later tests resulting in no reaction.

STABLE AND EQUIPMENT.—The stable was built 34 years ago and has not the concrete floor and modern stanchions that the best barns now built would have. The arrangements, however, are excellent. The original stable paralleled the railroad and was long enough for six strings.

When the herd increased so that there was no longer room in the original barn, wings were built out from the center like the spokes of the wheel. There are now four of these wings, each with room for two strings of cows, besides the original barn. All feed is distributed from the center, as from the hub of a wheel, and the milk house is located there, making as convenient arrangement as could be imagined for the distribution of the feed and the collection of the milk.

The feed is kept in another barn and brought to the milking barn in a wagon. This is perhaps a little inconvenient, but causes less dust and litter than if the hay were stored overhead, so is better. The milk is filtered, cooled and put in cans there and loaded direct on the cars and shipped to the distributing station in San Francisco. This too, is owned by the Millbrae dairy. As much milk is separated as is needed to supply the sweet

cream the city customers need, which makes no unnecessary shipment of whole milk to the city and the distributing plant has to run no skim milk off in the sewers as often is done with some distributing plants.

This skim milk is fed partly to the calves and partly to the hogs. Not many of the latter are kept. Those that are raised are fed very largely on waste material, the skim milk, the alfalfa hay left by the cows, the sweepings from the mill where the grains are fed, and so on, so gross receipts are nearly net receipts.

Above the barn (the railroad is on the lower side), is the corral. This is paved with basalt bricks and is so arranged that when a heavy rain storm comes the wash all drains off on to the marsh land. The brick is rather expensive, but will last forever and it is not slippery like concrete. It prevents the mud from forming and is an ideal pavement. The manure from the barn is taken off in a car to a dump and before plowing in the fall is spread over the cultivated portion of the farm.

FEEDS AND FARMING.—Despite the size of the place, some land being rented in addition to the 1,800 acres, it is not very productive, being mostly hilly and good only for pasture. The cows get several month's good feed in the spring and there is pasture for the young stock, but only a couple of hundred acres can be planted out. The land is not level enough for alfalfa irrigation and the gophers prevent rainfall alfalfa from being satisfactory.

The cultivated land is used for barley or for hay, the horses for city delivery and the ranch horses taking most of the hay. The barley is ground and fed to the cattle, together with ground wheat. The other feed is alfalfa hay and dried beet pulp, all purchased. The amount fed depends upon the condition of the pasture. At this time the average per cow is from four to five pounds ground barley, a little over two pounds of ground wheat, seven pounds of dried beet pulp, all mixed and fed dry, and from 17 to 18 pounds of alfalfa hay. In summer the proportion of barley is decreased.

It has been found that these grains give better satisfaction than bran and middlings, especially as modern bran is much inferior to old time bran. It can be seen that this is a much more expensive ration than alfalfa raised on the place would be. It is, however, as cheap a ration as could be devised and as well balanced for the cows.

The dairy, though having a place in history, will endure for not many years longer, in its present extent at least. Although far from the city when founded it is being surrounded by residence tracts and before long the land will be too valuable to use for dairy purposes, to say nothing about the objection that may possibly arise to have a large dairy run in the midst of a fashionable suburb. Even now the value of the land is such that the dairy itself would hardly pay, except that it is better to put the land to good use rather than to let it lie idle waiting for buyers of town lots.

The ranch in situation and climate is beautiful. In the front is the bay, behind the gently rolling hills, partly wooded, partly open. The peninsula shelters the district from the north winds with which San Francisco is often afflicted and the hills behind cut off the fog that is common nearer the Golden Gate. The sky remains clear, the air soft from bay influence, and the temperature moderate.

Ultimately when the dairy is disbanded it will have the distinction of leaving behind an interesting record as a pioneer California dairy and the herd that has been built up will in other places continue to raise the level of quality of dairy cattle in this progressive dairy State.

LIVE OAK STOCK FARM

Six Miles N. W. from Petaluma, on the Petaluma and Sebastopol Road.

FRANK A. MECHAM, Prop.
Importer and Breeder of

Red Polled Cattle

Color Deep Red. Both Sexes for Sale.

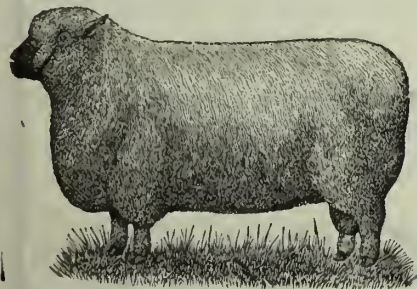
Address all communications PETALUMA SONOMA CO., CAL.



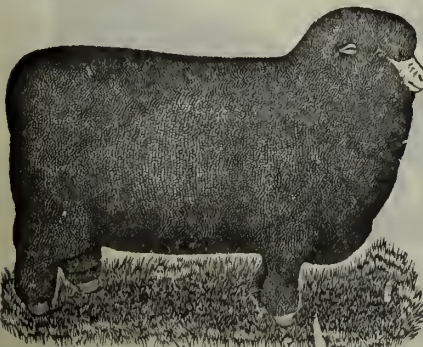
FRANK A. MECHAM

Importer and Breeder of Shropshire Sheep

They were all imported from England or bred direct from imported stock.



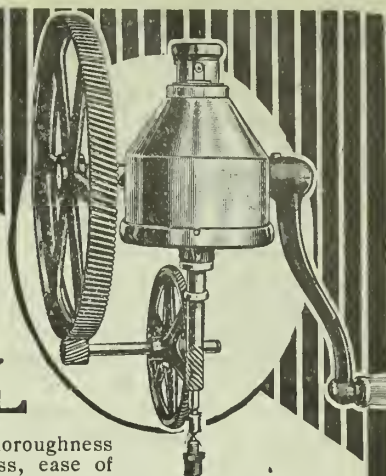
We have also bred American Merinos—Hornless Sheep—for 30 years. They are a large sheep with out wrinkles. Rams will produce 20 to 25 pounds of long, white wool yearly. Sheep of both sexes for sale.



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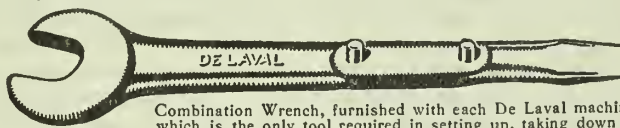
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EXCELS ALL OTHERS not only in thoroughness of separation, sanitary cleanliness, ease of running and durability, but as well in its great simplicity.

THERE IS NOTHING ABOUT THE OPERATION, CLEANING, adjustment or repair of a modern De Laval Cream Separator which requires expert knowledge or special tools.

NOR ARE THERE ANY PARTS WHICH REQUIRE FREQUENT adjustment in order to maintain good running or to conform to varying conditions in the every-day use of a cream separator.



Combination Wrench, furnished with each De Laval machine, which is the only tool required in setting up, taking down or using the De Laval, the simplest cream separator ever built.

THERE IS NOTHING ABOUT THE MACHINE THAT CANNOT be taken apart, removed or replaced by any one who can use a wrench or screw driver. In fact, the only tool which is needed in the use or the operation of a De Laval Cream Separator is the combination wrench and screw driver illustrated above, which is furnished free with every machine. Visit the local De Laval agent and see for yourself its simplicity of construction.

The new 72-page De Laval Dairy Hand Book, in which important dairy questions are ably discussed by the best authorities, is a book that every cow owner should have. Mailed free upon request if you mention this paper. New 1913 De Laval catalog also mailed upon request. Write to nearest office.

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THE PIPE THAT SAVES MONEY

No Sections. Solid Lengths of 10 ft., 6 in.

We want to tell you about "Western" Surface Irrigation Pipe—the pipe that is riveted instead of being lock-seamed. This pipe is a big money saver. Handle it as roughly as you desire—hitch it to a drag chain and yank it over the roughest ground—it will never break. The rivets give strength.

There's honest manufacture behind "Western" Pipe. Write for full particulars. You'll save money by doing so.

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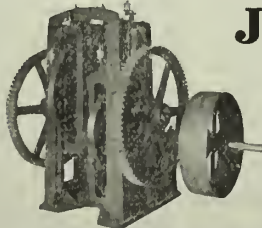
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Deep Well Pumps have proven superior for most economical irrigation pumping from drilled wells. In buying a deep well pump, WHY NOT GET THE BEST?

Luitwieler Improved Pumps have all of the essentials of THE IDEAL PUMP. They apply the power uniformly, have a balanced mechanism, quick return, operate without jerk or jar, keep the rod action uniform, deliver a steady stream of water at the lowest cost and with least bother.

The materials and workmanship are the best obtainable, and durability proven. In some instances, 11 years constant service without repairs.

EVERY BUYER BECOMES A BOOSTER.

Booklet Irrigation, or Illustrated catalogue No. 11 on request.

LUITWIELER PUMPING ENGINE COMPANY

Established 1877

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What Mr. Lively Told the Sheepmen.

D. O. Lively, Chief of Live Stock at the Panama Pacific Exposition, made personal addresses at all the breed meetings of sheepmen recently in Chicago. He filed this proclamation with the American Sheep Breeders for universal consumption by flock owners:

"It is my ambition to make of the sheep display in 1915 an event from which the business of producing wool and mutton can be thereafter dated. I see limitless possibilities to the lessons that can be taught at such a parliament of minds and materials as will congregate on the shores of the Pacific in 1915 in celebration of the opening of the Panama Canal. I can see no dangerous cloud on the horizon of the sheep industry and while it is possible that uninformed politicians may consider that the interest of the producer should be made to suffer for the benefit of the non-producer, the resiliency of the American sheep breeder and his flock—his acquaintance with adversity and his being accustomed to the onslaught of his foes, will put him to the front in the battle for supremacy. We are facing new conditions with regard to the sheep industry. The man who thinks and who watches the trend of events can see the necessity for an increased consumption of mutton. This will naturally bring about a demand for larger carcasses, whereas at this time the small carcass is all that is desired by the mutton consumer of the United States. The near future will see a call for the Australian size carcass, and this will bring about a change in breeding to some extent. I am advised by a representative of the Japanese government that the plains of Manchuria, Korea, and parts of Japan are admirably adapted for sheep raising. It will be the policy of the Japanese government, according to my informant, to offer encouragement to flock masters who will engage in the industry in the countries mentioned. The sheep breeders of Wales have expressed a desire to exhibit in San Francisco in 1915. The English breeders hope to be in position to enter the lists at San Francisco. Their letters to me are optimistic of the future. An exposition on the edge of the great range sheep industry cannot fail to be productive of heavy selling, and if the American record associations will accept my invitation to conduct breed sales at San Francisco in 1915 there will be some new records established. Correspondence from Brazil and the Argentines indicate a splendid interest and circulars printed in Portuguese and Spanish have already been distributed in those countries. These circulars tell of the great sheep show at San Francisco and invite the presence of flock masters, live stock society officials and government representatives to witness a display of sheep that is worthy of so great and powerful an industry. The animal husbandry classes and their teachers at every agricultural college in the United States have been asked to submit plans for an improvement in the method of exhibiting sheep at expositions. So far nothing has come out of this request, but I have bright hopes that something will develop that will bring about a change in the big established system of arranging sheep pens at shows and expositions. I have some pronounced ideas along this line and at the proper time will submit them to the associations and prominent breeders for consideration. I know this; the people who attend expositions and go through the live stock department are disappointed at their inability to see the splendid specimens that are supposed to be on display. There are other reforms incident to

showing sheep that will have the consideration of the record associations and this department. Liberal premium money has been set aside by the Exposition Company for sheep in San Francisco in 1915. This department is fully alive to the possibilities of the sheep division of the live stock department of the Panama-Pacific International Exposition. There is unbounded enthusiasm, a belief in mutton and wool, an active sympathy with the aim and purpose and leaders in thought and in action and with that co-operation which is expected and deserved the sheep show at San Francisco in 1915 will be something of which no man may be ashamed."

THE WASTE OF MILK SOLIDS.

(Continued From Page 161.)

fat in the cheese equals 35.5 pounds, that in sirloin and leg of mutton about 16 pounds, in loin of mutton about 29.5 pounds. There are also small amounts of milk sugar in the cheese; meats contain practically nothing of any food corresponding to this.

Furthermore, the mineral matter in the cheese far surpasses that in any meat, being over 4 pounds per hundred, while in everything but ham there is quite a little under a pound of digestible mineral matter. This is important, especially in our higher civilization. We remove the mineral matter from the wheat from which we make our bread and appear to pick our food so as to get as little bone-building matter as possible. The lime and phosphorus in milk were put there by nature especially to be used in building up the body, and a greater use of milk products would mean less dentist's bills to pay and a stronger, more muscular race. If roast beef would cost 18 cents a pound, cheese from a nutritive standpoint would be worth over 30 cents.

CALIFORNIA'S LACK.—Judging, therefore, from the experience in all long-settled countries where milk-producing animals are used, judging from the increasing requirements of animal food and the decreasing supplies, the merits of milk solids as retained in cheese, and the waste that is now permitted in letting most of the food in milk other than the fat go to waste, it will be only a question of time before cheese-making becomes an important part of our dairy industry.

California is especially lacking in this matter now. The kind of cheese ordinarily manufactured is of a type that is generally below standard, "California cheese" in groceries being considered poorer than "Eastern cheese," although for table use the California cheese may be more desirable in many cases than the Eastern cheese sold beside it. The process of manufacture is such as will enable the product to be made with as little waste of time as possible. As a result, only about half of the cheese used here is manufactured in the State, and there is no special effort in the market to develop the consumption of cheese.

That this lack will be filled, to the financial profit of the manufacturer, as well as to the benefit of the public, is indicated by the fact that the Central California Creameries, which has a reputation for being very much alive in doing the profitable thing, is going into the business of manufacturing the cheddar type of cheese, the kind made in the East and, nearer home, in Tillamook county, Oregon, which latter has a country-wide reputation. This company is taking special pains to get out the best kind of a product and is getting into

Irrigation Valves



—that require no special tools or wrenches to operate.

—that can be easily adjusted and regulated to allow the flow of any quantity of water by merely turning the thumb-screw.

Pomona Circular Valves

Perfect in construction, simple in operation—yet cheap in price.

Has no cross-bars to obstruct the flow of water. All parts are non-corrosive. Lid can be easily removed for instant and complete flushing of pipe line.

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It contains full information on our complete line of gates and valves for cement pipe irrigation—together with some valuable data on irrigation, water tables, etc. Send for a copy today.

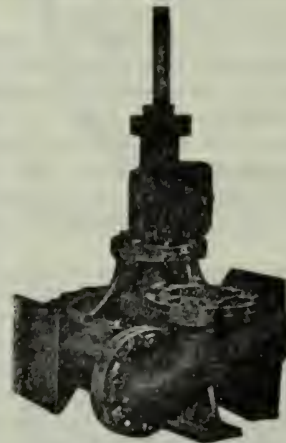
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PEASE-BUNDY-TAYOR CO.,
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We also make the Pomona Deep Well Pump for deep wells. Write us about your requirements and ask for catalogue 51P, or call and see us.



Krogh New Vertical
Water Balanced Pump

KROGH'S NEW VERTICAL PUMP

The Krogh New Water Balanced Vertical Pump contains many new and valuable improvements, same being fully explained in our Bulletin R-10, which will be mailed upon request.

We have a branch in Los Angeles
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The pump can be seen in operation
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KROGH MANUFACTURING CO.,
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**Eureka Harness
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Sold by Dealers Everywhere.

STANDARD OIL COMPANY

461 Market Street,

(Incorporated)

San Francisco.

"CALIFORNIA FRUITS AND HOW TO GROW THEM"

For sale by PACIFIC RURAL PRESS, 420 Market Street, San Francisco

public notice on the ground floor by systematic advertising.

Other big companies are also starting this, especially the great Eastern packing companies, which are represented in California in the creamery as well as in the packing business.

As far as the dairyman is concerned, the profit from butter-fat production for the manufacture of butter or the shipment of sweet cream is sufficient to justify the continuance of the practice, and nothing said here is meant as an exhortation to change methods. It is simply a statement of tendencies and of probable future practice.

KINDS OF CHEESE.—It is worthy of note in this connection that there is a big difference in American cheese and European. In America food production has been sufficient to make the methods of food preparation of an expensive kind. Anything like penuriousness or careful saving has often been frowned upon. Skim-milk was a waste product, therefore it was a crime to make cheese out of skimmed or partly skimmed milk. In the older countries, where everything had to count, the whole milk was first used for butter making, and after the fat was extracted, in whole or in part, the remainder was used for cheese. This does not necessarily result in an inferior product, but often in a superior one. In proof, some of the most expensive cheese used here, outside of some put up in fancy style or owing its price to some special feature, is a kind that is made from milk that has been pretty well skimmed. That is the kind made like a red cannon ball, or that put up in the form of a pineapple, roughly speaking.

In buying this kind of cheese, however, a person is getting a lot for his money, as it contains comparatively little water. The proportion of fat to other milk solids therein may be small, but it is concentrated. Ultimately, when we begin to economize and appreciate things on their real merit, it is not a bad guess that we will manufacture such cheese here. With the foreign immigration, especially since there is a good proportion of Europeans in the dairy and creamery business, it is but reasonable to suppose that European methods will be introduced here.

At present San Francisco is a very cosmopolitan city, and it is an interesting fact that a large number of the former Europeans resident there import cheese from their old homes. There are as many kinds of cheese manufactured as there are nationalities keeping milk-producing animals, and more. In the market now a person can buy many kinds of cheese, but there are many other kinds of all shapes, sizes and flavors that can be purchased in different quarters of the city which the ordinary citizen never sees. Instead of importing these, some live man will ultimately start manufacturing them here, and the merits of California as a dairy State will be combined with live American methods and the wider experience of all nationalities to make a change for the better in dairy manufacture.

LIVE STOCK REPORT ISSUED.

On January 29 the Crop Reporting Board of the Bureau of Statistics of the U. S. Department of Agriculture made the following estimates of the number and value of farm animals on farms and ranges in the United States on January 1, 1913:

	1913.	1912.
Horses	20,567,000	20,509,000
Mules	4,386,000	4,362,000
Milch cows	20,497,000	20,699,000
Other cattle	36,030,000	37,260,000
Sheep	51,482,000	52,362,000
Swine	61,178,000	65,410,000

It is worth note that the horses and

mules, which are meeting competition from automobiles, are increasing in number, while the other animals which meet no such competition are all on the decrease. The value per head of everything increased, \$4.83 for horses, \$3.80 for mules, \$5.63 for dairy cows, \$5.16 for other cattle, \$0.48 for sheep and \$1.86 for swine. Both numbers and values are, however, but estimates. The values given per head are: Horses, \$110.77; mules, \$124.31; milch cows, \$45.02; other cattle, \$26.36; sheep, \$3.94; swine, \$9.86. The total value of animals was \$5,501,783,000, as compared with \$5,008,327,000 on January 1, 1912.

Details by States will be given in the February crop report, and it is safe to say that there will be a big increase in number and value in California, and that values will be greater in California than in the country at large.

GRAIN AND POTATOES FOR PIGS.

To the Editor: Will you kindly tell me how much corn or barley should be fed daily to each pig? I have 100 head, ranging from 60 to 150 lbs., and as I am in doubt, would like to know just what quantity to give them. I have plenty of potatoes. Would you alternate with same, and how many pounds, cooked, daily?

Ryde.
ANSWER BY CHAS. GOODMAN.

A correct answer to the above would require a technical knowledge of swine-feeding that would hardly be found in possession of an ordinary farmer.

Prof. Dietrich, of the University of Illinois, has worked out a system of feeding that would answer this question better than anything of which we have any knowledge.

If we were capable of explaining this system, which we are not, the space available in an agricultural paper would not be sufficient. One can obtain a copy of "Swine," by Wm. Dietrich, from the publisher of this paper for \$1.60, and it is well worth the money.

If we were going to feed these hogs according to Missouri hogology, with the feed at hand, we would feed the corn and barley ground, if possible, and, if not, whole, and the potatoes cooked in combination and alternate nothing. Changing feed is not a good idea.

Corn and barley are both the best of fatteners, and as good potatoes are rich in starch they are also good for producing fat. For fattening hogs this combination would be hard to improve upon. The flavor of the meat might be improved by adding some sugar or molasses feed. A variety of feed will produce a better flavored meat than an exclusive diet.

We would feed an amount twice a day that they would clean up, and no more. We would aim to feed just enough that they would be ready for the next feed.

If we were going to feed this bunch of pigs for gain and not for market, we would run them on green pasture and feed the above combination. If the pasture land were sandy or gravelly the pigs' teeth would become sore, and that would necessitate cooking the grain as well as the potatoes, as they would likely swallow the grain whole.

We have run pigs on volunteer wheat and fed them on cooked barley with the best results. It is marvelous how they will grow under such conditions.

Williams, Cal.

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GROUND SQUIRRELS, GOPHERS, also
BORERS, ROOT APHIS, etc., on Fruit
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LAND FOR SALE.

YOU GET RESULTS of my years of searching State Records. Some State land overlooked, supposed owned by absent parties. Well located for you, near all towns. State does not advertise these bargains. I do. It pays you. Write right now. New circular. JOSEPH CLARK, Searcher State Records, Sacramento.

WALNUTS—35 acres, specially selected deep rich loam soil; excellent drainage. Five-inch pumping plant installed. Set out mostly to California Blacks to be grafted later, some Mayette, Franquette, and Willson Wonders. Beautiful location; electricity and all conveniences. Price \$250 per acre. Address owner, 1007 Second St., Sacramento, Cal.

100 ACRES FIRST CLASS FRUIT or alfalfa land, 4 miles from good town in San Joaquin Valley; 60 acres alfalfa, Balance checked. First water right on 60 acres and a \$2000 pumping plant. Good house and barn, land fenced and cross fenced. Handy to grade and high schools and in a strictly first class American colony. Will sell on easy terms to right party. If you are looking for a location on a good ranch, large or small, raw or improved, in the San Joaquin Valley, I can certainly be of service to you. R. O. Baker, 1033 J St., Fresno, Cal.

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Best dairy district in United States—Los Molinos. Alfalfa goes 10 tons. Single acre supports two cows. Sediment soil 20 feet deep. Gravity irrigation—plenty of water last year when all the rest of the State was short.

Free pasture now plentiful. Cows furnished on butter-fat payments. Three creameries competing for cream—wagon comes to your door.

The alfalfa grown on this land last year was worth more than the price of the land. You can buy on 8 years time with almost nothing down.

Fine fruit county. Oranges not frozen during recent cold spell in January. Beautiful place to live. Great oaks, running streams, plenty of game, schools and church. On line of State Highway. Electric road soon to be built.

More land sold in this district than anywhere else in California this winter, because there is water and feed—and soil. Choice tracts going fast—getting scarce. See us today.

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LOS MOLINOS LAND COMPANY,
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AVOCADOS (budded), Feijoas, Cherimoyas, and other subtropical fruiting plants and trees. We have the largest and finest stock of budded avocados, and the best varieties. We grow only subtropical fruits of proven adaptability and sterling merit. Send for pamphlet. WEST INDIA GARDENS, Altadena, Cal.

FOR SALE—Florida sour orange seed. Order now while we have plenty. They will be higher later on. We also have grafted walnut trees, both black and soft root. Orange County Nursery, 6th and Main, Santa Ana, Cal. Red 3891.

NURSERY TREES, fruit and ornamental. Nearly all varieties to be seen on our experimental place near State highway. LEONARD COATES NURSERY COMPANY, Morganhill, California.

FEIJOA—This superb new fruit is hardy all over California. Sure to be one of our great commercial fruits. Write for prices. COOLIDGE RARE PLANT GARDENS, Pasadena, Cal.

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MOUNTAIN GROWN BERRY PLANTS—Red raspberries, 12c each; \$2.50 a hundred. Strawberries, \$1 a hundred; \$4.50 a thousand. J. M. MOORE, Inwood, Cal.

PRUNE TREES, 20, 25 and 30c. Burbank's spineless cactus by mail, postpaid, doz., \$5; by freight, \$16.50 per 100. CASH NURSERY, Sebastopol, Cal.

VILLA ANNA NURSERY—Fruit and ornamental trees. Burbank standard cactus a specialty. Santa Rosa, Cal. Write for catalogue.

EASTERN BLACK WALNUT seedlings from one heavy producing tree; can spare some. Inquire B. LEONHART, Roseville, Cal.

FOR SALE—Dwarf evergreen broom-corn seed at 5c per pound. Denair Broom Factory, Denair, Cal.

NORTHERN GROWN POTATOES, selected for seed, 1½ c. per pound. O. C. Langfield, Davis Creek, Modoc Co., Cal.

Bitter Almond trees, clean and thrifty. Walnut and Pecan catalogue free. Tribble Nurseries, Elk Grove, Cal.

E. A. Bennett, of Ducor, Cal., will quote you sour orange seed, delivered to any postoffice.

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POSITION WANTED—By skilled poultryman; extensive California experience on large plants. Mechanical, construction, repairs, executive, all details. Box 777, Pacific Rural Press.

WANTED

WANTED—For immediate delivery, 1300 walnut trees (California Black), 4/6 or 6/8. Box 580, Pacific Rural Press.

MISCELLANEOUS.

AGENTS—\$173 in two weeks, made by Mr. Williams, Illinois, selling the Automatic Jack, combination 12 tools in one. Used by auto owners, teamsters, liveries, factories, mills, miners, farmers, etc. Easy sales, big profit. Exclusive country rights if you write QUICK. Automatic Jack Company, Box O, Bloomfield, Indiana.

AIR-SLACKED LIME—Lime corrects soil wrongs, helps other fertilizers to do their proper work. Can I help you? H. B. Matthews, Fertilizer Chemist, 733 Merchants Exchange Bldg., San Francisco.

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1—2-H.P. Root Van Dermoot.....\$65.00
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Milch Goats in California and Elsewhere.

James E. Downing gives, through the American Sheep Breeder, a general exhortation to milch goat husbandry, based largely upon California's achievements in that line and these will be interesting to our readers.

In California the people are making a success of raising goats—not the kind that are always trying to give you a boost in the world, but the gentle, sleek, fawn-like Toggenburgs that give so much rich milk and make such delightful pets.

The great value of this particular kind of goats is that they combine splendid milking qualities with an intelligent and kindly disposition when properly handled. Being easy to handle makes their care and management work that women can do. Many women who would not think of taking care of a cow would find the management of these goats a real pleasure.

SELLING GOAT MILK.—Persons who have owned Toggenburg goats testify that there is never any difficulty experienced in selling milk; the real difficulty seems to be to get enough of it to meet the demands. There is so little of it to be had at any price that there is not an established price set for its sale, but the price which generally prevails is 25 cents a quart. A full grown goat will give from three to five quarts per day. The cost of keeping them is very small. Being hardy, they will keep in a healthy condition on very common feed. About five cents a day would be an average cost where they are not pastured on too high priced land.

HANDY TO HAVE A GOAT ALONG.—The

SMALL RANCHES

Very near Oakland
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On the new Oakland and Antioch Ry.
Cars will soon be running direct from
the Key Route Boats to Lafayette, Walnut
Creek and Concord.

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near Large Cities are the money makers.
One or two acres as good as twenty
located fifty to one hundred miles away.

What's the use of raising Anything and
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a million people as a market
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Think this over.

Always get land near large population,
Near Electric and Steam Transportation
with good soil conditions; In ideal climatic
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with established schools, churches, etc.,
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Where you can grow anything—
Vegetables, Fruits, Berries, Nuts, Chick-
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Just what the ever growing population of
San Francisco, Oakland, and all the Bay
Cities must have;

Where you can live in the Country
and have all the city comforts.

This is land worth while in a country
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Call at office or write for particulars.

R. N. BURGESS CO.

734 Market Street,
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Branch Office: 1538 Broadway, Oakland.

richness of the milk is one of the reasons why it sells so readily. It tests from 3% up to 7%. Another good feature is the fact that tuberculosis is seldom found in goats. For that reason the milk is in demand, especially for infants. In this connection it has a special advantage. When the family goes away on a visit, regardless of the time of year, "Nanny" can be taken along in a crate in the baggage car and "Snookum's" supply of milk will always be fresh and near at hand. The long train of ills that usually follow a change of milk for a delicate baby can be appreciated in this connection. A vacant lot with some grass on it will provide feed for "Nanny" during the time the family is visiting away from home.

But rich, healthful milk is not the only thing. Most delicious cheese can be made from the whole milk; cheese that is real cheese, at least one will think so when asked about a dollar a pound for it. And it is worth it if one appreciates something fine. It has a delicious flavor and is very appetizing, easily digested and quite nutritious. To make a pound of it requires about four quarts of milk.

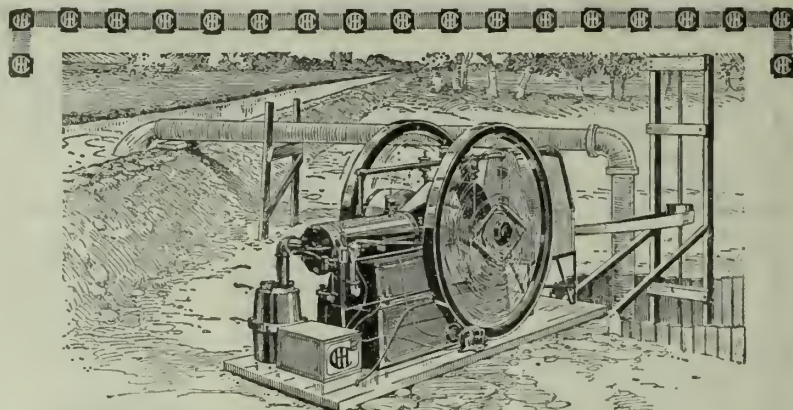
THE CHANCE IN BREEDING.—The financial side of the industry is not confined to the dairy features, however, for the most money is made in selling young goats. There are not very many thoroughbred Toggenburg goats in the United States. Their native home is Switzerland, but quarantine regulations have prevented but few of them being imported, hence a young thoroughbred goat, weaned at five months is worth about \$75, while a grade doe of the same age ranges in price from \$15 to \$35, depending upon the merits of the individual. These prices, no doubt, would be reduced quite a considerable if more could be imported, but conditions in Switzerland are such that the quarantine will not be relaxed until certain diseases have been eradicated, and there is no promise that this will take place soon. In the meantime the few breeders who have herds will find ready sale for their surplus and those who have milk to sell will continue to get good prices.

A mistake which is common among those who go into the business is to attempt to breed the does at too early a period in life. One of the most successful breeders in this country resides in California. He has found by experience that it is a bad mistake. It is his practice never to breed them until they are two years old, thus insuring full size and development.

Because a goat is a hardy animal is no reason why it should be weaned too early in life. It has been found that by far the best results are obtained when the young goats are given all the milk they want up to four or five months of age. This will, in most cases, insure a vigorous, lusty specimen that will develop well.

Breeding, however, is not all. They must be handled well. A thoroughbred that would otherwise be a good milker can be spoiled if not properly handled. Although strong and rugged they are not immune to abuse, but if fed regularly and carefully, treated kindly and given reasonable care they will give generous rewards.

Thoroughbred goats like thoroughbred cows do not develop into wonderful milkers, but occasionally one makes an astounding record. As an example of this, a California breeder owns a goat that has produced 1,709 pounds of good rich milk in a year. Her highest record is 9 pounds and 10 ounces in one day



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GROWING crops by irrigation is a success or failure according to your ability to get the correct amount of water on the ground at the right time. One sure way to provide the right amount of water at the right time, is to install an independent irrigating plant run by an

IHC Oil and Gas Engine

An IHC engine will also furnish power to run a feed grinder, cream separator, or any other farm machine.

IHC general purpose engines are built in every approved style—vertical, horizontal, portable, skidded, and stationary, air-cooled and water-cooled; in all sizes from 1 to 50-horse power. They are equipped to run on gas, gasoline, kerosene, distillate, or alcohol, enabling you to use the fuel which is cheapest or most convenient. Tractors are made in 12, 15, 20, 25, 30, 45, and 60-horse power sizes, suitable for use on large farms or small.

There is an IHC local dealer near you who carries these engines in stock or can get one for you. Also, he will always be able to provide any necessary repair parts promptly. Get catalogues and full information from him, or, write the nearest branch house.

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PERCHERON, BELGIAN, ENGLISH
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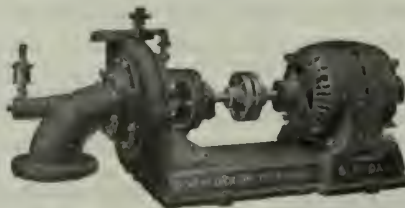
We sell more imported horses than all other firms on the Coast because we are direct importers and give a four-year guarantee which is good right at home. We have on hand at all times the largest and best lot of heavy draft stallions and mares, both American bred and imported, to be found any place in the West. If you are in the market for a high-class stallion or mare, don't fail to give us a call, as we can sell you more genuine horse for the money than any other importer in the business.

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The "1912" Jackson Inletting Device is a valuable feature which operates automatically and permits the pump to be run with practically no attention.

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SWINELAND DUROC-JERSEY TAMWORTH and BERKSHIRE SWINE
Boars, all ages, for immediate delivery. All stock fully guaranteed and registered. Money back if you are not fully satisfied. SWINELAND, Box 161, Yuba City, Cal.

REGISTERED DUROC JERSEY SWINE
Some extra good young boars for sale, ready for service. Best Eastern strains. Ed. E. Johnson, Turlock, Cal.

REGISTERED BERKSHIRE SWINE—
Best Eastern strains; bred sows and spring pigs for sale. A. B. Humphrey, Mayhews, Sacramento Co., Cal.

REGISTERED DUROC JERSEYS—No better anywhere. Boars, sows and young stock for sale. Immediate delivery. Jno. F. Daggs, Modesto, Cal.

MULEFOOT HOGS—Prolific, easy feeders, very prepotent. Young stock eligible to entry; also a few grades, cheap. Edouart Bryant, Lemoore, Cal.

REGISTERED POLAND-CHINA SWINE—
Prize winners, finest stock in State. \$30 up. M. Bassett, Hanford.

PURE BRED POLAND-CHINAS. Iowa Wonder 188779 heads herd. N. Hauck, Alton, Humboldt Co., Cal.

REGISTERED POLAND-CHINA SOWS; bred. Good pigs five months old. P. H. Murphy, Perkins, Cal.

POLAND-CHINAS; large type. The Browning Stock Farm. W. H. Browning, Woodland, Cal.

G. A. MURPHY, Perkins, Cal.—Breeder of Champion Herd of Berkshires; also Short-horns.

GEO. V. BECKMAN, Lodi, San Joaquin Co., Cal. Registered Poland-China Hogs, both sexes.

POLAND-CHINAS—Medium type. Fine young stock for sale. W. Bernstein, Hanford.

KNOB HILL STOCK FARM—Reg. Poland-China swine. A. M. Henry, Farmington.

CALIFORNIA NURSERY CO., Niles, Cal. Breeders of Thoroughbred Berkshires.

CHAS. GOODMAN, breeder of High-Class Berkshire Swine. Williams, Cal.

TAMWORTHS—THE BACON HOG. Kennedy Bros., Amsterdam, Cal.

S. B. WRIGHT, Santa Rosa—Registered Berkshires and Jerseys.

REGISTERED O. I. C. SWINE. C. B. Cunningham, Mills, Cal.

BEEF CATTLE.

SHORT-HORNS AND BERKSHIRES—
Practical excellence and show qualities. Rookwood Farm, Ames, Iowa. C. F. Curtis, Prop.

SIMON-NEWMAN CO., Breeders of Registered Herefords. R. M. Dunlap, Manager, Newman, Cal.

SHORT-HORNS—Ringmaster at head of herd. White & Smith, St. Cloud, Minn.

SHORT-HORNS—Villager heads the herd. D. R. Hanna, Ravenna, Ohio.

T. B. GIBSON, Woodland, Cal.—Registered Short-horns and Poland-Chinas.

HEREFORDS—Fairfax Perfection heads herd. J. P. Cudahy, Belton, Mo.

HEREFORDS—Gay Lad 6th heads herd. O. Harris & Sons, Harris, Mo.

DAIRY CATTLE.

JOHN LYNCH, breeder of Registered Short-horns, milk strain. High class stock. First-class dairy breeding. Smooth cattle. Best pedigree. P. O. Box 321, Petaluma, Cal.

BEGIN 1913 by buying pure-bred Jersey sire. Bull calves, \$25, \$50, \$75 and \$100. Service bulls \$100 and up. Prize-winning and producing stock. N. H. Locke Co., Lockeford, Cal.

T. B. PURVINE offers for sale a few nice registered young Jersey bulls and bull calves out of fine cows. Petaluma, Cal. R. F. D. 4, Box 195.

JERSEY BULLS FOR SALE—Several most excellently bred bulls, 6 mos. to 2 yrs. old, \$50 to \$125. Carden City Sanitarium, San Jose, Cal.

REGISTERED Short-horn and Registered Holstein bull for sale. A. Balfour, 350 California St., San Francisco.

MINOR & THORNTON, Breeders of Reg. Holstein-Friesian cattle. Kearney Park P. O., Cal.

REGISTERED JERSEY CATTLE—Young stock for sale. W. J. Hackett, Breeder, Ceres, Cal.

MISCELLANEOUS.

FOR SALE—Fine Holstein cattle and Berkshire boars; all subject to registry. Geo. C. Roeding, Fresno, Cal.

JERSEY CATTLE, DUROC JERSEY SWINE. Mossdale Farm. J. E. Thorp, Stockton, Cal.

which is equivalent to five quarts of 7% milk. She only weighed 135 pounds at the time.

The goat industry in the United States has not been overdone. In fact it has nowhere reached its possibilities. This is not because of indifference or a lack of market or knowledge of the animals, but owing to a general scarcity of well-bred animals of the right kind.

TRAINING THE SHEEP DOG.

James McKay gives the American Sheep Breeder an essay on training the Scotch Collie, from which we take these plain suggestions:

In every breed there are some especially good dogs and a great many poor ones, and it is not always the fault of the dog or of the breed, for a great many are spoiled in the training.

In selecting a pup for training, I like to pick one with a bright eye and intelligent face. We all like a good-looking dog, but that is not essential to the worker. I like best to select one from a good working strain. At one time I thought the Bench Collie would not make a good worker, but I have found that a mistake, for the dog I have now, "Jetty," is one of the best bred dogs in America. Her sire, Ben Davis, was a noted prize winner, and her grandmother was the champion bitch of Canada.

After I have selected my pup I want him to run and play as a pup should until about nine months old. Before that time I do not try to teach him anything except to come when called, to lie down when told, and to follow close to heel.

Now his real education begins. If I have already a good working dog it is quite a simple matter, for it is surprising how quickly the little one learns to imitate the old one. But we don't always have that; then the trainer must play the old dog and do a little running himself.

Everyone has his own whistles, or mode of command, and the dog soon learns them. It is a mistake to let him get too far away at the start; teach him to work close, and if he makes a wrong turn, don't fail to bring him in to your foot. It is a good plan to have the dog wear a collar and always carry a small chain in your pocket, so you can tie him up when necessary. Never make the mistake of whipping a dog if he does wrong—tie him up. The Collie has a very sensitive nature, and often a good pup is spoiled by rough handling.

It is not always the brightest pup that

HORSES AND MULES.

REGISTERED PERCHERONS FOR SALE—
Send for list to owner. All acclimated. Two gray stallions matured. State certificates of soundness. One 2-year-old black stallion. One white brood mare. Four black brood mares. Prices low owing to owner's illness. Send for list. M. E. Sherman, R. R. 6, Box 86, Fresno, Cal.

CARLOAD OF PERCHERON STALLIONS; all State inspected and sound frame. Work horse price up. Horses exchanged. Write for folder. Horses at State Fair Grounds. M. T. Bernard, Box 218, Sacramento, Cal.

PURE-BRED REGISTERED PERCHERONS AND BELGIANS. A few choice young stallions from three to five years old, also two and three year old fillies for sale. Los Altos Stock Farm, Los Altos, Cal.

REGISTERED BLACK PERCHERON Stallion, Joaquin, No. 77186; three years old next April. Price reasonable. F. S. Israel, Linden, Cal.

PURE-BRED JACKS AND JENNETS for sale. All stock guaranteed as represented. Prices reasonable. J. E. Dickinson, Fresno.

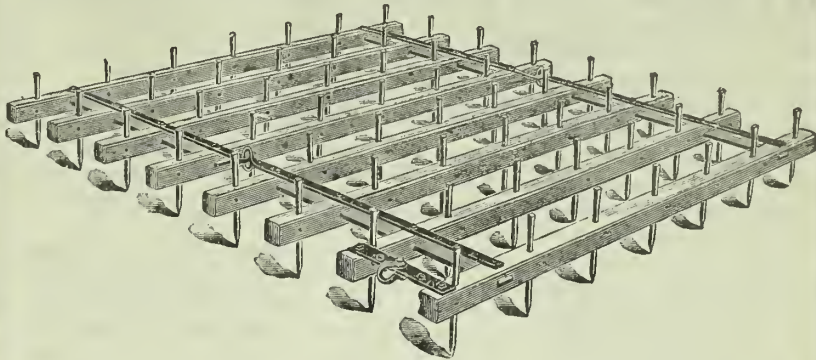
BIG BONED BREEDING JACKS for sale. Jas. W. McCord, Hanford.

RUBY & BOWERS, Davis, Cal.—Registered draft stallions, all breeds.

SHEEP.

CHAS. KIMBLE, Breeder and Importer of Rambouillets. Hanford, Cal.

Benicia Spike Tooth Wood Bar Harrow



Above illustration shows the BENICIA SPIKE TOOTH WOOD BAR HARROW with Draw Bar Clevis.

These Harrows are made in all sizes, from thirty-one to one hundred teeth each. The bars of the frame are made of TOUGH OAK of high grade, size 2 3/4 x 2 3/4 inches, with corners at ends neatly rounded. Teeth in these Harrows are of a high grade of steel, and will stand a large amount of strain and abuse.

A 5/16 inch diameter carriage bolt is put through the bars close to each and every tooth, and prevents the possibility of the bar splitting.

The hinges are of what is known as the flexible pattern, and allow each section to have an independent vertical motion of several inches. All sections are coupled together without the use of bolts or pins. BENICIA HARROWS are neatly finished and varnished. There is no better appearing and more efficient Wood Bar Harrow on the market than the "BENICIA."

BENICIA IRON WORKS, Manufacturers

Factory: Benicia, Cal.

451 Brannan St., San Francisco, Cal.

makes the best worker and one should not get discouraged if a dog does not learn readily, for it takes a long time, and unless the dog has some bad habits will pay for all the trouble. When the trainer gives a command he must watch carefully that the command is obeyed. He must not allow anything else to take his attention, but watch his dog closely and if he is likely to make a break, call him in before he makes it.

Don't make his lesson too long at first, and when it is through have a nice comfortable place for him and close him in until time for another lesson. He thus is rested and ready for work and anxious to get out and so his lesson becomes a pleasure to him.

Whether an old or a young dog, make it a point to close him in at night. Then you know he is not getting into mischief. The reason there are so many sheep worrying dogs, is because the owner does not know where his dog is at night, and two dogs can plan as much mischief as two boys.

Don't forget the old saying, "Love me, love my dog." The dog is a companion; make him such; talk to him as you might a boy, and you will soon get an answer, in dog language of course, but often as intelligent as a human being.

SUGGESTION OF HOG POLICIES.

A system of rotation of crops which will bring best results to the land and to the pocket-book at the same time is given thus by Prof. H. D. Scudder of the Oregon Agricultural College agronomy department:

"On the 160-acre farm where the farmer is raising hogs and wishes to turn off 100 head a year weighing 250 lbs. each, there would be a production of 25,000 lbs. of pork to reckon for," said Mr. Scudder. "At 7 cents a lb. this would

bring him a cash income of \$1,750 a year. It would require 4 1/2 lbs. of barley for every lb. gain, or 1,450 lbs. of barley for each 100 lbs. gain in a 60-day fattening period, which would be 5 to 10 lbs. a day a hog.

"How can the farmer do this and at the same time increase the fertility of his land so that in a few years he can raise the same crop of hogs on 100 acres, and thus economize in expenditure of time, labor and money and increase his profits proportionately?

"He might divide the farm into four 40-acre fields. No. 1 might be put in clover, part pasture and part hay. No. 2 might be planted in field peas, rape, corn and kale for 20 acres, the other 20 in clover. No. 3 could be put in vetch for pasture and hay, and No. 4 planted 10 acres in oats, and the other 30 in barley.

"This would furnish the hogs continuous pasture through the year of vetch, then early clover, then field peas, then rape, then second crop of clover, then corn, with kale for the brood sows over winter and plenty of barley to put the hogs through the fattening period. This would require about 100 bu. for 100 head in 60 days, a total of 1,500 bu. grown easily on 30 acres with this rotation.

"The clover hay, vetch hay and excess soiling crops that might be cut from the vetch, clover, corn and kale would take care of 20 or 30 cattle, cows, or still more sheep.

"What would it do to the land? This is an ideal rotation to restore nitrogen and organic matter through the clover and vetch, while the kale, rape and corn utilize the manure and allow cultivation for the aeration of the soil without loss. The barley and oats permit seeding the ground again to clover without loss of time. The pork and other live stock products are the money crops. These continually increase fertility and profit."

Incubator Pointers for 1913.

Written for the PACIFIC RURAL PRESS by
SUSAN SWAYSGOOD.]

No, we are not going to upset the laws of the universe, nor even to upset any good law or rule each one may have of running an incubator, all we are going to do is emphasize what has been said before on certain phases of incubation.

While at the Los Angeles show we listened to a very good lecture given by Professor Dougherty who is in charge of the poultry at the University Farm.

He is very strong on having vigor in the parent stock and gives a good idea of how to tell the right kind of breeding males. His way of picking a vigorous male out is identical with mine, and, it is, that the fighting bird is a sure vigorous bird. When I have a bird that comes for me every time I go in his coup, I know I have a bird that will sire some good chicks, and Mr. Dougherty is of the same opinion. So in selecting a male bird don't pick for a namby pamby, well behaved bird, but one that cuts up rough when you go near his females. Vigor is more indispensable in the breeding pen than good manners.

Don't have the hens over fat, for fat is not healthy nor will it breed healthy chicks. If we want to raise incubator chicks we must see that the parent stock are in good sound health and have a vigorous constitution. All this in preparation for the incubating.

CARE OF THE EGGS.—Next comes the care of the eggs after they are laid, and here is where a great deal of mischief is done, sometimes very innocently. After an egg is laid, that is if intended for hatching, the sooner it is removed from the nest the better, because every time a hen goes on that same nest to lay it heats up the egg lying in the nest and constant cooling and warming detracts from the virility of the germ. The egg should be removed and placed on end in a proper egg filler and covered with a light weight cloth to keep all draft from it. Of course the container should be kept in a temperature as even as possible, neither too hot nor too cold and if kept several days I believe they are better for turning.

This question has been debated over and over but on this point I can see no reason to change my old rule of turning once a day. While it may not be necessary, I think it is, so my conscience is easier for the doing of this small chore.

S. C. WHITE LEGHORN BABY CHICKS,
\$9.00 per 100, \$35.00 per 1000.

S. C. WHITE LEGHORN HATCH-EGGS,
\$1.00 per 15, \$5.00 per 100.


My stock is thoroughbred and carefully selected for Standard and laying qualities

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Arroyo Grande, Cal.,
San Luis Obispo County.

**PENNANT STRAIN BARRED and BUFF
PLYMOUTH ROCKS.**

A few choice cockerels and pullets left.
Eggs for hatching after January 1st.

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Free Book

giving a full account of hatching, raising, and caring for chickens, with details of a Complete System of Feeding.

Will be sent to you on application

COULSON CO.
Box 6, Petaluma, Cal.

I have known people to pack eggs in bran, but I never knew eggs that were so kept that hatched out well, why this is so is perhaps explained by stopping up the pores. You know eggs are porous and fine bran is likely to get in the pores and stop them. Under a hen the pores would have a chance to get cleaned out, but not in an incubator where there is no direct contact with any cleaning surface. So keep eggs for hatching out of all mixtures.

Now to select eggs for hatching, see that they are all of good size and good shape, neither too large nor too small, avoid all eggs having rough shells or warty excrescences on them and pick those having good strong shells.

PREPARING THE INCUBATOR.—Now having our eggs selected we are ready to think of the incubator and this must not be delayed until the day we are ready to set the eggs. It is always better to be a little forehanded in everything. Before starting the lamp see that it is in perfect order, new wick and clean burner. Then wash out the egg chamber, top, bottom and sides, egg trays and all over with a good strong solution of creolin, zenoleum, creoleum or any other of the popular disinfectants.

Now start the lamp and let it run a few hours, place the thermometer in its place and towards evening see how the regulator is working. It is much better to run the incubator twenty-four hours before putting in the eggs. In that time you can watch it and by putting in the eggs about noon there is plenty of time to get the regulation right before night time comes on.

Now my way is to dip the eggs in a solution of creolin before placing in the incubator, but Mr. Dougherty says he prefers to spray or wash out the incubator after it has got to the right temperature for running. In this way he feels sure any bacteria that may be lurking in the incubator are killed. This insures the eggs from contracting diarrhea in the incubator; provided, the heat is not run too high or too irregular.

TEMPERATURES.—One, or perhaps two slips in the running will not harm eggs from good, strong stock, but I would not like to risk too many slips from the regular temperature. It is much better to start low, say 102, and increase the heat one degree after the first week. In my opinion the slower the germ is brought into action the better chance there is for the growth of the embryo later on. Running the heat too high in the first place has a tendency to make the growth of the embryo too large and later the egg gets so full that the chick has not turning room and so dies in the shell.

Just one more idea on the question of temperature is this, that chicks hatched from an incubator where the heat has been run low, will stand just so much a lower temperature in brooding. If you doubt this try it with a bunch of chicks that have been run in the incubator at high temperature; the possibility is that you won't raise many. This is the real reason why so many chicks die that are bought from hatcheries. The hatchery who really has his customer's interest at heart, will instruct him to brood warm, but the average hatchery says nothing, the buyer proceeds to treat the chicks as he would hen hatched and the chicks die off like flies. What they need, until they are acclimated, is a good, warm brooder, warm water and very little feed.

Most chicks are fed too much and too soon, 48 hours is plenty soon enough and longer is better. I have kept them 72 hours, but it is hard for me to do it, though I am sure the chicks are better

for the long fast, which really is not a fast, as they are absorbing the yolk of the egg during this seeming fast.

The more common sense we use on these matters of feeding and less sentiment the better for us.

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HIGH PROTEIN

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Mixed Meat and Bone
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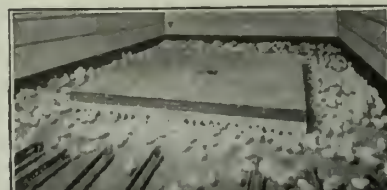
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POULTRY.

THE MANOR FARM RHODE ISLAND REDS have won more prizes, cups and specials during 1912 at the big important shows than all their competitors. Utility or exhibition stock and eggs; also please remember if you order S. C. White Leghorn chicks from our 180-200 egg strain you will want more. Prices on chicks, \$10 per 100; eggs, \$5 per 100. Also Barred Rocks and Minorca eggs and stock. The Manor Farm, Petaluma, Cal.

OUR GOLDEN ANTLERS AND SILVER CAMPINES took several first prizes both for the fowls and the best white eggs at San Jose, November, 1912. From Jan. 1st to Oct. 31st, 23 hens laid 4148 eggs, and are still laying. Crystal White Orpington and Antler pullets for sale. S. & B. G. HAIGH, Route 2, Box 4C, San Jose, Cal.

BUFF LEGHORNS—Booking orders for spring delivery of day-old baby chicks from two-year-old breeding stock; also eggs for hatching by setting or 100; 6000 egg incubator capacity. Indian Runner duck eggs for sale. Baby ducks hatched to order. R. M. Hempel, R. F. D. 1, Lathrop, Cal.

CROLEY'S LICE POWDER—for lice on fowls; insects on plants. 25c the lb. can.

MAMMOTH BRONZE TURKEYS—Young and mature toms and hens from large utility stock, at SPECIAL LOW PRICES. Good bone, full breasted, well marked, healthy and early maturing turkeys; write for prices. Geo. A. Smith, Corcoran,

WESTERN HATCHERY—Fred Dye, Proprietor, successor to Dye & Fredericks. Now booking orders for day-old chicks, from heavy-laying strain White Leghorns. Prices on application. Box 2, Petaluma, Cal.

PIGEON BARGAINS—Fine young Homers, \$1.00 mated pair. Large Runt crosses, \$2.00 mated pair. Thoroughbred Carneau, \$3.00 mated pair. Discount for quantities. Sunny Slope Squab Farm, Healdsburg, Cal.

SHELLVILLE HATCHERY—Thoroughbred White Leghorn chicks shipped on approval; examine at your home before remitting; no weak ones charged for. Rural Box No. 72, Sonoma, Cal.

WHITE ORPINGTONS—100 early hatched cockerels and pullets from prize-winners. Sales subject to approval on delivery. Eggs \$5 to \$15 per 15. Jeanne A. Jackson, Oroville, Cal.

\$3.00 PER HUNDRED—Standard Thoroughbred White Leghorn eggs for hatching. Hatchable eggs from healthy hens. Heavy winter-laying stock. Andrew Emery, Kenwood, Cal.

BROWN LEGHORN ROOSTERS, chix and eggs, same in Barred Rocks, White Minorcas. W. S. Rose, Yuba City, Cal.

CHOICE BREEDING COCKERELS and day-old chicks, Barred Plymouth Rocks and White Leghorns. Fairmount Hatchery, Box 29, R. 1, Santa Cruz, Cal.

ORPINGTONS—Buff and White. Trios, \$10 up. Eggs, \$3 to \$5 a setting. Chicks, 30 cents each, incubator lots. Mrs. S. Swaysgood, R. 2, Pomona, Cal.

BLACK MINORCA COCKERELS—Page strain; a few at \$3.00. W. L. Bowland, R. D. 6, Santa Ana.

BARRED ROCKS ONLY—February special, cockerels \$2.50 each; five for \$10. Write for "Mating List." G. L. Hawley, Madera, Cal.

S. C. WHITE LEGHORNS—Heavy layers. California's greatest prize winning strain. Eggs, chicks, stock. Send for list. M. Dutterbernd, Petaluma.

PHEASANTS—Ring-necked China pheasants for sale; also eggs in season. Address T. D. Morris, Agua Caliente, Sonoma Co., Cal.

BABY CHICKS—White Leghorns and Barred Rocks, from selected stock. Also hatching eggs. Satisfaction guaranteed. N. G. Carpenter, Box 14, Sacramento.

CHICKS—White Leghorn, White Rock; high-class stock. Send for booklet of prices. Mahajo Farm, P. O. Box 597, Sacramento, Cal.

BARRED PLYMOUTH ROCKS, White Minorcas, White Holland turkeys. Stock and eggs only. L. N. Cobbledick, Oakland.

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BUFF ORPINGTON AND COLUMBIAN WYANDOTTE; eggs and stock. Mrs. Leona Brophy, 1415 N. St., Fresno.

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BABY CHICKS, from heavy layers. White Leghorns, Barred Rocks, R. I. Reds. Free folder. White Hatchery, Petaluma.

CHICKENS, DUCKS, GEESSE, GUINEAS, Pea fowl. Address Wm. A. French, 545 W. Park St., Stockton, Cal.

TRAPNESTED S. C. WHITE LEGHORNS. Eggs, chicks, stock. A. R. Schroeder, Box P, San Gregorio, Cal.

FREE BOOK—"Poultry Feeding for Profit," on application to Coulson Co., Petaluma, Cal., Box P.

WHITE LEGHORNS—Chicks, eggs, cockerels. Fine stock. Reasonable. O. B. Morris, Lodi, Cal.

After the hatch is off, open up all ventilators, clean out the egg trays and let the chicks have pure air, that is better than all other things you can give. Pure air of the right temperature gives them strength, but even pure air if too cold will weaken them, so here is where we need to know how the hatching was done, whether at high or lower temperature.

FEEDING—After 48 hours it will be safe to give the chicks a little light feed of rolled oats and grit, or chick feed and grit. I use the fine eastern oyster shell for the first feed mixed with a little rolled oats crumbed fine, and not too much at once as the little things are soon satisfied. If you have them in a brooder, see to it that it is fixed so that they cannot get far away. I generally fix a board just about one foot each way until they learn where to go to get warm.

Don't be in a hurry, it is better to get one lesson learned before trying another. If kept long enough without food and water, nature prompts them to go about these tasks in the right way, and you need not waste time and energy to do what nature will do for you. At the University Farm the first meal consists of fine cracked wheat, corn and rolled oats; and after one week they place a mash before the chicks composed of "2 pounds bran, 2 pounds shorts, 1 pound of bone meal, 1 pound of corn meal, 1 of beef scrap, and a small amount of charcoal."

This mash is not left before the chicks all the time, but is given about ten o'clock in the morning after the grain ration and removed every evening. To my mind this is better than leaving a mash before chicks in season and out of season. To this ration I would add all the lettuce the chicks will eat and if the bowels keep all right add one pound steel cut oats to the mash.

In feeding oats the chicks should always be watched, and at the first sign of trouble cut ground, or rolled oats out at once, and feed a little rice boiled in cinnamon. In place of beef scrap for young chicks boil a beef heart and cut into strips with the scissors then let the chicks exercise with it. Beef scrap must be very good to be fit for very young chicks, and I have not found any that I would trust the last year or two.

Now we have two enquiries this week, one I would have answered by mail if the lady had sent her name and address. However, it is not too late yet. The question is, "I have some Black Minorca hens and rooster. I want to pen them up for breeding purposes and want to know if is too late? When must you put the male bird with hens to have fertile eggs?"—A FARMER'S WIFE, Woodland.

Answer.—No, it is not any too late to mate up Minorcas. The male must be in the pen at least ten days before the eggs are safe to use, for hatching, after that it is all right.

Mrs. J. L. Robinson sends in a request for Mr. Hunt's method of feeding and caring for Indian Runner ducks. She says, "I have twenty Indian Runner ducks and I have not got more than two dozen eggs all fall and winter, and I have tried to feed and care for them right, too." By answering this reader Mr. Hunt will confer a favor.

Springs and watering places that are sufficient to control about 125,000 acres of cattle range in the hills back of Sun-

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set, Kern county, have been purchased by H. W. Klipstein & Sons. The land

purchased was a part of the J. I. Waggy ranch.

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Poultry Department, Hopland, Cal.

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Selected and mated to imported stock cockerels.

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Home Improvement, No. 10.

The Farm Water Supply.

[By E. G. NORRIS, of the I. H. C. Service
Bureau.]

There is more poetry than pleasure in "carrying water from the spring," or any other source of supply, when face to face with the proposition of carrying enough of it for the family washing, the Saturday cleaning and scrubbing, and incidentally, the Saturday-night bath supply. With dishes to wash three times a day or more, cream separator to clean, vegetables to wash, cooking, and the hundred and one other demands for water in the daily routine of the home, is it surprising that the housewife seems always to see empty water pails before her? A call on Johnnie or Willie brings the invariable complaint, "Didn't I just get a pailful?" It may have been a couple of hours ago, and mother may have carried in a dozen pailfuls herself in the meantime to avoid delay. And if father carries in an occasional pail or two, it is with a half-conscious air of having done his duty as a considerate head of the house.

This is a day of labor-saving devices, and there is nothing which will save more labor and give greater satisfaction to the country housewife, and at the same time add so greatly to the comfort of the entire family, as a home water-works system.

There are thousands of farm homes where such systems have been installed, and there are thousands more where they no doubt would be adopted were it not that the idea has never taken practical form in the farmer's mind. If it ever did suggest itself, it was as a sort of "pipe dream," and with the putting away of the pipe was dismissed as impracticable or altogether too expensive a proposition to be considered seriously.

A home water-works equipment is not impracticable for any ordinary farm or village home, and the average farm owner, on looking into the subject a little, would no doubt be surprised to find at what comparatively light cost such comfort and saving of labor can be accomplished.

Especially is this the case where there is already a gasoline engine on the farm to do the pumping—and there are few farms of any size or pretension nowadays that do not have one of these engines. Even if an engine must be purchased primarily as a part of the house water-works equipment, its cost cannot rightly be charged up wholly as a part of the expense for this purpose, as it is used for so many other purposes—cutting and grinding feed, spraying, turning the grindstone, operating the cream separator, churn, washing machine, and every other machine to which power can be applied. Conceding, therefore, that almost every farm either has or will have its engine for general purposes, the cost of an engine is hardly to be considered as a part of the cost of putting in a water-works system.

There are three methods by which a farm or village home that is out of reach of a city water-works system can be equipped with running water:

(1) By gravity from a well or spring on higher ground; (2) by gravity from elevated tanks; (3) by means of a pneumatic tank.

The first method requires conditions

rarely found. It depends on having an elevated spring or water source near at hand, from which water can be piped down hill with pipes run into the house up to a height corresponding to the source on the hill. Obeying the natural law that makes water seek its own level, the water will rise in the pipes as high as the level from which it has been secured, and can thus be distributed throughout the house. With this system no pumping whatever is required. This is an ideal method, but the necessary conditions are not often found.

Gravity flow by means of an elevated tank is a system quite commonly used. The tank is often placed in the attic of the house, or in the hay mow, or it may be placed on a tower in the open yard. When a tank is located in the hay mow, the pumps are in the stable and the supply pipes are run underground to the house. As to the size of tank, a 500-gallon capacity should be large enough for a medium-sized farm, for both family and stock. Such a tank could be filled daily by running the engine from five to ten

minutes at practically no cost for fuel.

A 500-gallon tank in either galvanized steel or cypress can be bought for about \$10 or \$12. If only a house supply, to be located in the attic, is desired, a 150 to 200-gallon size might be large enough and even more desirable, as too

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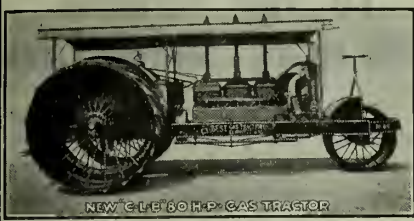
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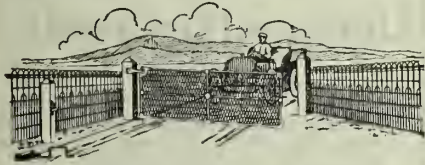
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The Dairy Farm, Gurler.....	1.10
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Mushroom Culture, Falconer.....	1.00
The Study of Corn, Shoesmith.....	.50
The Hop, Myrick.....	1.50
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Asparagus Culture, Hexamer.....	.50
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Home Pork Making, Fulton.....	.50
Farm Gas Engines, Brate.....	1.10
The Book of Alfalfa, Coburn.....	\$2.00
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Feeds and Feeding, Henry.....	2.25

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great a weight would not be practicable in such a location. One of these smaller tanks could be purchased for about \$5. A 1000 to 2000-gallon tank would cost from \$15 to \$25, but with a tank of that size, located so as to avoid trouble in cold weather, a half-hour's pumping with a gasoline engine a couple of times a week would furnish water for every possible use on the farm, for both family and stock, and for watering the flowering shrubs, fruit bushes, and the family garden in dry weather, by merely turning a faucet or two. It certainly sounds attractive, doesn't it?

The pneumatic tank system of supplying water for the home is unquestionably the best and most satisfactory system that has yet been devised, though perhaps costing a little more in the beginning than the elevated tank gravity method. The outfit consists of an air-tight steel tank, a force pump, and piping to connect well to pump, pump to tank, and tank to house pipes. The tank is usually placed in the cellar, or is buried underground, and the pump may be located at the well, in the cellar, or wherever convenient.

The principle on which the pneumatic system is based is air pressure. Water is pumped into the air-tight tank and compresses the air in the tank, which exerts a proportionate pressure on the water, forcing it upward in the pipes to the desired height. Some of the advantages are that, owing to the location of the tank in the cellar or underground, the water is kept cool in summer and does not freeze in winter; also, the air in the tank, by oxidizing organic matter in the water, purifies the water to a considerable extent.

Any form of power can be used to do the pumping for a pneumatic system—hand power, windmill, gasoline engine, hot-air engine, electric motor, etc. It is a safe guess, however, that anyone who is interested enough in labor saving to install a water system is not going to do the pumping by hand and is too intelligent to have expensive hired labor do it. Windmill power requires a tank large enough to hold at least a three days' supply; otherwise, lack of wind may keep the water system out of commission a good share of the time. In some cases, the electric motor, hydraulic ram, or other special forms of power may be the most practical, but for the average farm, for average conditions, gasoline engine power gives by far the most all-round satisfaction. As a pumping engine and all-round source of power for the farm work, the gasoline engine has many advantages. It does not require the services of a trained engineer. Any man of ordinary intelligence can learn to run it in less than a day. It is light in weight and can be easily moved from one place to another as the work requires. It can be started in a few seconds and will run all day without any attention whatever. It cannot possibly blow up and there is no danger of fire. It is cheaper than hand labor—if a pint of gasoline costing two cents can be made to do the work it takes a man eight hours to do, the gasoline should be made to do it.

With these facts in mind, no farmer needs to be afraid to invest in a good gasoline engine, if necessary, to do his pumping. If he gets a good one, he will get his full money's worth aside from the pumping proposition, and, with power furnished, the rest of the expenses for a water system will not be especially heavy.

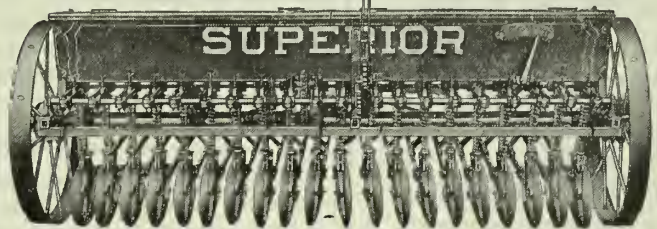
The purpose of this article has not been to give detailed information as to how to install a farm water system, but rather to awaken interest in the subject and direct attention to its practical possibilities.

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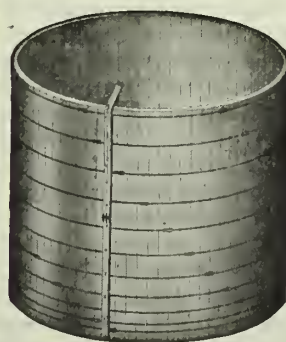
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AGRICULTURAL REVIEW.

Raisin Prices.

The American Vineyard Co., the leading Thompson's Seedless shippers, are out with contracts for Thompsons at 4c for the first year and 3½c for four following years. A few contracts have been secured by this company and by Griffin & Skelley, both of which companies have a reputation for liking to see good prices to the growers, the first-named concern handling mostly its own raisins. Muscats still are low, 2¼ and 2½c being as good as can be secured. The contracts of the Associated Raisin Co. are meeting with a pleasant reception from the larger growers. Among the growers contracting are the Empire Vineyard & Orchard Co., 915 acres; Wylie M. Giffen, 740 acres; Pete Droge, 430 acres; Karl Emirzlan, 400 acres; Balfour-Guthrie, 320 acres; and many others with 100 to 300 acres. The Chamber of Commerce of Fresno formally endorsed the company at a meeting on January 29.

Dairy Inspector Busy.

Dairy Inspector J. S. Canham has been active in getting after a few dairymen in Kern county who needed getting after. One dairymau, convicted for the first time of selling adulterated milk, was fined \$25; one guilty of a second offense had to pay \$100. Milk adulteration is considered a serious offense by the Bureau, other shortcomings usually resulting only in warning to do better at first. A third conviction recently, through the Inspector, met with a fine of \$30. This was for keeping an unsanitary dairy and making no effort to improve in spite of notices to do so.

Creameries Busy.

The Tulare Co-operative Creamery has elected officers for the ensuing year. J. P. Murphy has again been appointed manager. This company paid out to its patrons last year for butter-fat \$430,182.90. The average price to shareholders was 37c a pound, and to non-shareholders 36c. It is owned and managed, on a co-operative basis, by 222 dairymen, who handle about 5000 head of cows.

The following have been elected directors of the United Creamery Co., Arcata, Humboldt county: Neil Lorenzen, William Spalette, Peter Parton, Charles Sacchi, Martin Larsen, J. C. Montoe, Ben Chaffey. It is reported that a new creamery is to be erected at Keyes, Stanislaus county, about two miles south of Ceres. That part of the State is pretty well filled with creameries now, and an increase does little good to the dairymen.

Another Holstein Record.

The Holstein-Friesian Association is reporting another astonishing record, that of K. P. Manor Kate, owned and bred by Stevens Bros., Liverpool, N. Y. This young cow, calving at a little past two and a half years of age, produced the enormous amount of \$18.73 pounds of fat from 22,106.4 pounds of milk, which, according to the Holstein-Friesian Association method of figuring, would make well over 1000 pounds of butter. She produced in the early lactation period, under official test, 22,477 pounds of fat from 571.8 pounds of milk in seven days, and 89,973 pounds of fat in 30 days. Her test was 3.93, 3.82, and 3.69 in official tests at different times, and for the whole year 3.70. This is a wonderful record for a young cow.

Other yearly tests reported in the period from December 24, 1912, to January 3, 1913, that ran over 800 pounds of fat, were: Creamelle Valc, 924.68 pounds fat from 29,591.4 pounds of milk, and Panline Queen Johanna with 819.72 pounds of fat

in 25,660.1 pounds of milk. The milk production of Creamelle Vale was reported before. It is a world's record. The average test of the cows reported in the period named above is 3.54 per cent fat.

Dairy Sales.

E. W. Robbins, of Pasadena, has been buying a number of Holsteins to add to his herd. He has purchased the whole herd of grade Holsteins of Peter Bondson of the Lakeside district, Fresno county.

The sanitary dairy of James S. Pedrotte, Santa Rosa, has been sold to W. W. Carroll and W. Gildersleeve.

Gerald O. Hillier, of Modesto, has announced that his first annual sale of purebred Jerseys will be held early in April. Rhodes & Rhodes, of Los Angeles, will be the auctioneers.

Yuba Dairymen Progressive.

A letter received from Browns Valley, Yuba county, states: "Quite a bit of progress has been made along dairy lines in Browns Valley. Charles Burris is at present milking 35 cows and is planning to put on more before long. He is shipping the cream to Davis. There are several more smaller dairies stocking up. Most of them ship their cream to the Auburn creamery. C. C. Maltby, of Browns Valley, has been experimenting for the last couple of years with spineless cactus. He has found that it does well up in that section and is planning to set out about an acre this summer."

Dairymen Organize.

Dairymen of Klamath county, Oregon, just over the California line, are organizing a county association on the line of county associations in this State. The activities of the State Association here are progressing. J. W. Griberson, president of the Association and Assemblyman from Tulare, has introduced the dairy bills and has forwarded copies to this office. Doubtless other copies could be secured by any dairyman interested by application to the Secretary of State, or to Mr. Griberson himself.

Fruit Men Organizing.

A strong organization of fruit-growers is being started in Tulare county. The danger of injurious legislation affecting labor conditions on the farm is the inciting cause of organization, although other matters of interest to fruit men will be taken up later.

Cattle Shipments.

Heavy shipments from Reno to San Francisco have been going out recently. The last day of January, 19 cars of cattle were started for San Francisco, 12 going to the Western Meat Co. and 7 to J. G. Johnson. Another car was shipped to Truckee.

From Modesto a large shipment of draft and driving horses was recently sent to San Francisco, and another shipment is being made up for next week. A large amount of hay is leaving Modesto for Los Angeles and southern points. From Laton, Fresno county, heavy shipments of hogs have been going on. From Biggs, Butte county, sheep shipments have been heavy.

The big modern abattoir of Miller & Lux at Los Banos, Merced county, has been started. It is thoroughly satisfactory and was erected to save the shrinkage and loss in shipping live cattle to San Francisco.

Various Items.

F. C. Noel, of Lerdo, Kern county, is

19 New Varieties Ettersburg Strawberries

PRICE LIST			
		Doz.	100.
Ettersburg No.	80	\$1.25	\$5.00
"	84	1.15	4.50
"	91	1.00	4.00
"	111	1.15	4.50
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"	76	1.15	4.50
"	94	1.25	5.00
"	114	1.00	4.00
"	116	1.00	4.00
"	79	1.15	4.50
"	71	1.00	4.00
"	89	1.25	5.00
"	121	1.25	5.00
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Send for catalogue describing all the above varieties.

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IMPERIAL WALNUT NURSERY,
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preparing to plant out 100 acres to hemp this winter. If the crop is a success, 10,000 acres may be planted by the Lerdo Land & Water Co. next year. The crop is off in time to put in some Egyptian corn.

A careful examination of the injury done to cactus by the winter freeze is being made by Dr. David Griffiths of the U. S. Department of Agriculture. Dr. Griffiths is inspecting the cactus at the Chico Plant Introduction Gardens.

The Riverside County Beekeepers' Club and other beekeepers' organizations are sponsoring a bill providing for a board of apiaary examiners, a state apiculturist and county inspectors.

The 400-acre mountain ranch of George C. Murphy, back of Porterville, with the cattle thereon, has been sold to M. F. Palmer, who already owns citrus land adjoining it.

BE POLITE TO YOUR COWS.

The secretary of the Holstein-Friesian Association in sending out recent records gives a few suggestions of the value of gentle treatment for cows if they are to do their best work. His advice is as follows:

Too few breeders and dairy farmers give the needed recognition to the basis on which the dairy industry is founded—the motherhood of the animal furnishing the milk. The Tartars milk mares; other people in other parts of the world milk goats, sheep, asses, buffaloes or deer. But milk and its products form one of the chief sources of food supply for the world; and as compared with the amount obtained from the modern cow, that obtained from all other animals combined is inconsiderable. It is fitting that so gentle and lovable an animal as the cow should occupy so exalted a position. It is well that we have such a foster mother for human kind. But does her motherhood always receive recognition? Is she not often treated as if she were a mere machine, instead of a highly organized living mechanism for the conversion of feed into milk?

One of the most successful of the early Wisconsin dairymen had for his motto, "Speak to a cow as you would to a lady;" and when he was asked if he removed his hat when he entered the stable door in the morning, he replied that he certainly would do so if he thought that he could get more milk thereby. What owner, especially in testing, has not noticed that some of his milkers was able to get more milk from the cows than were the other milkers? It is the personal equation, the regard the cow has for her attendant, that gives hand milking an advantage over the machine; and the more nearly the cow has adopted her milker in the place of her calf, the greater will be his success as a milker. There is usually a vast difference in results between the milker who gets a cow into position by pushing the leg of the stool into her flank and then kicks her on the shin to make her step back, and the one who gains the same end with patience and gentleness. Who can blame the cow for wanting to kick the first man?

Aside from the knowledge of how to feed in general and the study of the special wants of the individual cows, to attain the greatest success, a man must win the affection of the cows. Some will say that this cannot be done. But if the calf and growing yearling is treated gently and kindly, and then is stabled and handled before freshening like a cow, there will be no such thing as breaking the heifer to milk; she will take it as a regular thing. There have been those who in good faith advocated music during milking, declaring that it had a quieting effect; and the idea gains some support at the Dairy Shows. It may be that

as the poet says, "Music hath charms to soothe the savage breast." But the breast of a properly brought up dairy cow is not savage; and if it were a bull that had broken loose, had made up his mind that some one was going to get what was coming to him and was strictly on the job, I should prefer to do the soothing from the roof of the hog house and well out of reach.

If a person desires to install a music box in the stable, it may be that it will work all right; but the less of singing, whistling and loud talking there is, the better it will be. Indeed, talking of all kinds except the low spoken, soothing words of the milker to the cow should be prohibited. If a Holstein-Friesian cow be bred right and fed right, it is up to the milker to get immediate return for the food consumed. No man who hates milking and dislikes cows can make any great success; there must be sympathy between the cow and the milker. When you see a cow that is fastened loosely enough at the neck reach around and affectionately lick her milker as she would her calf, you will know that that man will get all the milk anyone can get. Motherhood and milk production go together. Treat the cow like a mother. Be kind; be gentle; it will pay and pay big.

PREGNANCY OF MARE.

To the Editor: Is there any way to tell when a mare is in foal? I have had a veterinarian and he could not tell me.—B. F. B., Healdsburg.

There is no very good way to tell whether a mare is in foal for some time. Practically speaking, the safest way to do is to have her bred every time she comes in heat until she takes the stallion no longer. Even then some mares will come in heat a couple of times after getting in foal. If the sexual excitement speedily subsides and the mare persistently refuses the stallion for a month, she is probably pregnant, though not surely so. Also if a vicious mare becomes gentle after service it is an excellent indication of pregnancy; likewise pregnant mares will very often put on fat rapidly after conception and will be unable and unwilling to do as hard work as before. Enlargement of the abdomen, especially in its lower third, with slight falling in beneath the loins and hollowness of the back are significant symptoms, though they may be entirely absent. Swelling and firmness of the udder, with the smoothing out of its wrinkles, is a suggestive sign, even though it appears only at intervals during gestation. A steady increase of weight (1¼ pounds daily) about the fourth or fifth month is a useful indication of pregnancy. The further along the mare is in gestation the more pronounced the symptoms become. In the early stages it is naturally much more difficult to detect, especially with the great differences in different mares. Cessation of heat and changes of disposition are about the best signs in early stages.—D. J. W.

KALE AND CORN FOR COWS.

F. M. Sherman tells the Pacific Home stead how he stumbled onto a plan whereby he gets a great quantity of cow-feed from a very small piece of ground:

"Four years ago we had a very poor stand of sweet corn, and one day we set the blank spaces with some kale plants; results were the best kale we ever had. Getting the idea from this, we have since been setting kale between every corn hill and find the kale does better than when set alone, and we can see no ill-effect on the corn.

We take off the green corn in season, then cut the fodder at once and begin to feed cows as can eat. This leaves the



NOW IS THE TIME TO FERTILIZE

Fruit Trees and Vines

Mixtures especially prepared for Fruit Trees of all kinds, also for Vines, Berries, and Vegetables. Write for Booklet.

THE MOUNTAIN COPPER COMPANY, LIMITED

150 PINE STREET, SAN FRANCISCO.
High Grade Bluestone for sale.

entire ground to the kale which then grows very rapidly, making an immense crop—often more than it would if planted alone.

Having only eight acres as we have, and this being covered with garden crops, the entire year, we have little space for growing cow feed; still by utilizing our corn ground this way we manage to have as much or more on a half acre than a cow can eat for nine or ten months at a time; besides the cash crop we have taken off in green corn.

This could be as easily applied to corn when grown for ensilage, if corn was hand cut, though the kale will be broken more or less, it will not be damaged in the least, or only for tre time being at most; for it will soon throw out new shoots and leaves again, and these can be "stripped" at least twice in a good season, after which there will still be a good growth before time to cut and clean the ground for reseeding. By "stripping" we mean taking off all leaves either by hand or with a fork. The plants will soon have a better yield than the preceding crop."

INTENSIVE WORK WITH STRAWBERRIES.

Of the successful strawberry growers in the Salt River Valley, Mr. P. I. Edson, president of the Maricopa Farmers' Institute, is, according to the Progressive Farmer, probably making as much net profit per acre as any one.

Mr. Edson has the sandy loam soil and practices intensive methods. He believes in fertilizing, and for best results is two years in preparing the ground, plowing under in that time at least forty loads of stable manure; as a preparation he plants potatoes or sows barley the first season, followed by cow peas or soy beans, these to be plowed under; then the ground should be thoroughly prepared and plants put out from December 1 to March 1, the earlier date preferred. In preparing the ground, the rows are short, with only about ½ inch fall to the rod, rows 30 to 36 inches apart, and ten rows between borders; in preparing these they are so arranged as to have a supply ditch for irrigation, and a drain ditch, so as to drain the water off rapidly if desired, and at the same time the arrangement is such that they can be flooded if desired, a condition that is necessary after the bearing season is over. In setting the plants, water is run through the furrows, and the plants set on the water line of one side; in after cultivation (which, as we have intimated, is very thorough), the earth is gradually drawn toward the plants until after a few cultivations they are left in the middle of the row.

The varieties that he has found to do best are the Excelsior, Lady Thompson, and Michel's Early. A one-acre field of berries has brought him over \$1200 in the past two years.

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If you're really out to win.

There's no easy path to glory,
There's no rosy road to fame,
Life, however we may review it,
Is no simple parlor game;
But its prizes call for fighting,
For endurance and for grit,
For a rugged disposition
And a "don't-know-when-to-quit."

You must take a blow or give one,
You must risk and you must lose,
And expect that in the struggle
You will suffer from a bruise.
But you mustn't wince or falter,
If a fight you once begin,
Be a man and face the battle—
That's the only way to win.

Kim's Last Whipping.

There was once a wretched little unpainted school house that stood in a sand-bank all summer and a snow-bank all winter, waiting for a strong north wind to blow it over.

"Say, what will you sell that school house for?" asked a traveler of a little boy who stood on one foot on the rickety doorstep.

"For a bunch of matches," answered the little boy as quick as thought. The man laughed and rode on.

The boy was Kimball Price, the rogue of the town of Skoodac, District Number Three, and the try-patience of all his teachers. He was a handsome lad, ten years old. I do not mean that he was always ten, but that was his age when Miss Pentecost whipped him, and that is where our story begins.

Now Miss Pentecost taught the school that summer at District Number Three. She liked Kim; everybody liked him; but that was no reason why he should be allowed to tie the girls by the hair—they wore long braids in those days—or fire paper balls, or eat choke-cherries, or stock pins in the benches to make the a, b, c scholars cry "O!" when they were not saying their letters. Miss Pentecost never winked at naughtiness, and, as whippers were fashionable at that period, she whipped Kim regularly three times a week. It was considered the most direct way of reaching the conscience.

But Kim never could remember a whipping more than a day and a half, or at the longest three days; and Miss Pentecost began to grow discouraged. Must Kim always go on doing mischief and neglecting his lessons, a boy who could learn so well if he chose? She knew his mother, a poor widow with a large family of children, and she was sure Mrs. Price could not afford to send Kim to school merely to play.

"What can I do to make an impression on that child?" thought Miss Pentecost one day as she tied the strings of her gingham "log-cabin" under her chin and stepped out of the school-house.

Just then she caught these words spoken by Kim with great energy, and a flourish of fists: "Tell you it's true, Bob Whiting, for mother said so; and, if mother says it's so, it's so, if it ain't so!"

Miss Pentecost laughed all to herself and passed on through the sand-bank into the dusty road. When she had gone

as far as the big willow, she paused a little and laughed again.

"I like to hear a boy talk so about his mother, even if it is nonsense. Kim is an affectionate little fellow, and I shouldn't wonder if he is a pretty good son. Anyway, I have an idea, and I mean to try it, and see how it will work."

Next day was the time for one of Kim's regular whippings. He had been more trying than usual, and Miss Pentecost sent Bob Whiting out for a remarkably strong birch stick, which could express her feelings better than the old one, which stood in the corner. She spent some time in trimming the new twig, though she was careful to leave a few knots on it which would give emphasis to the blows.

"I think I never saw a better birch stick," said she, looking at it admiringly. "Now, Kimball, you may take off your jacket."

He was so used to taking it off that he always kept half the buttons unfastened to save time. Miss Pentecost gave him an unusually hard whipping, and after it he cried till he could hardly see out of his eyes. He thought that was enough, and it was what the boys call "a square thing"; but at night, as he was running out of the school house whistling, Miss Pentecost called him up to her desk.

"Well, Kimball, I've whipped you hard today, very hard." Kim thought there was no doubt about that.

"Yes'm," responded he meekly.

"Look at this stick. Didn't I take pains to get a good one?"

"Yes'm," said Kim, but he didn't gaze at the stick as if he loved it.

"Do you know, Kimball, it is very hard work to whip you? It lames my arm, and it hurts my feelings. Really, I can't afford to do it day after day for nothing."

Kim looked up in surprise. This was a new view of the matter.

"You understand me, Kimball? I can't afford to do it for nothing any more. There's not another boy in school I've whipped so often as you, and this time I must be paid for it. Don't you think that's fair?"

"Yes'm," said Kim, in intense amazement, his eyes as black and shining as watermelon seeds.

"Well, Kimball, I think it's worth at least twenty-five cents, and I don't want you to come to school tomorrow without bringing me the money. Tell your mother about it, and tell her, if you don't bring it, I shall have to send you home for it. Good-night, Kimball, and remember what I say."

"Yes'm."

"What did she do to you this time?" asked Joe Fuller, who had been waiting outside.

"O, go 'long, now; she didn't do anything to me," replied Kim, sheepishly. "Come let's run down to the pond and catch blood-suckers."

Next morning, about school time, Kim stole along into the shed-kitchen and hung about the cheese-tub, where his mother was cutting curd.

"Why don't you start for school? You'll be late, my son."

"The mistress whipped me yesterday," muttered Kim, helping himself to a lump of curd.

"Did she? Well, I've no doubt you deserved it. There, run along, and see if you can't be a better boy today."

"But mother—"

"Well, what?"

"Why, you see, the mistress—"

"Well, speak it out, sonny. I'm in a hurry."

"Why, you see, mother, the mistress wants twenty-five cents for whipping me."

"Twenty-five cents?"

"She says it lamed her arm," said Kim,

hanging his head. "She says she can't do it for nothing, and, if I don't bring it, she'll have to send me home."

Mrs. Price looked down at the curly-haired culprit with a twinkle of fun in her eyes—she had black eyes very much like Kim.

"Well, sonny, go get my purse out of the end cupboard. If I am poor, it sha'n't be said I don't do all I can for my children's education."

Kim brought the purse—a red worsted one, with steel rings.

"Yes, here is a silver quarter, with the pillars on it. We are out of gingerbread, and I was going to spend it for molasses; but never mind, I don't blame Miss Pentecost. I know it was hard work to whip you and she deserves the money."

"Thank you, Kimball," said Miss Pentecost, in a low voice, when she received the bright new quarter. "Didn't your mother think I deserved it?"

"Yes'm," replied the boy, his chin sinking into the hollow place in his neck.

"I thought she would. Well, now, my dear, I shall carry this quarter home and keep it, and the next time I whip you, you must bring me another. Do you understand?"

Kim scowled down at his little bare toes and tried to stick them into a crack in the floor. Why, this was getting serious! Would the woman keep on crying "quarters" forever? It was perfectly ruinous. His mother had all she could do to support the family before, but what would become of them now?

"You may take your seat," added Miss Pentecost, still in a low tone, so that no one could hear, but with a smile that exasperated poor Kim.

"It is dreadful that you will be naughty; but, then, you see, the more I whip you, the more money I shall get; and perhaps before the summer is out, I shall have enough to buy a new dress."

"No, you don't," thought Kim, shutting his teeth together. "Catch me letting my mother buy a dress for you. Why, we've got to go without gingerbread today. You don't get another chance to whip me for one while, ma'am—now you see."

To avoid a whipping it was necessary to study, for Kim was a boy that must be busy at something. He saw Bob Whiting go to sleep and longed to drop a tame cherry in his mouth. He saw Joe Fuller sauntering down the aisle, looking straight before him, and it was the "cutest chance" to trip him up; but Kim resisted these allurements and fifty more, and got his geography lesson so well that Miss Pentecost patted him on the head, and said: "That's my good boy"—which would have been delightful if he could have forgotten that gingerbread.

Next day he tried studying again and rose to the head of the spelling class.

"Why, I haven't had a whipping since Tuesday," thought he Saturday noon, as he ran home with the silver medal on his neck.

After that he seemed somehow to fall into the habit of studying. Studying is a habit, let me tell you, just as much as playing, though I suppose it is rather harder to acquire.

The little fellow's will was aroused, and that was precisely what he needed. In short, Kim had had his last whipping from Miss Pentecost or from anybody else; and, instead of being her most troublesome boy, he became the best scholar in school.

"I shan't be able to buy that dress after all," said she, the night before she left Skoodac; "but, Kim, dear, I know you are glad."

"Yes'm," replied Kim, meeting her eye with a smile.

"And I'll keep the quarter to remember you by. Your mother says she wishes me to."

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"Yes'm."

Kimball Price is now one of the most respected men in his native State.

"And that man," said Squire Hathaway the other day, in his Fourth of July oration, "was educated over here at Skoodac, boys, in that little black school house that is so poor and miserable that, when it took fire, a few years ago, it wouldn't burn down. Mr. Kimball Price returned from Europe last May with his wife, and I heard Mrs. Hathaway say—she was once Miss Pentecost—that he thought his last whipping made a man of him.

"He wanted that old quarter of a dollar," said Mrs. Hathaway, laughing, "but I couldn't bear to part with it, so he cut it in two, and we've each of us got half."—Sophie May, in Wide Awake.

St. Valentine's Dinner Ttable.

February 14th will be celebrated by the young people as St. Valentine's day, and if the young ladies are giving a dinner party, the following suggestions for setting the table will be found helpful:

Over the table-cloth, or pad, spread a cover of red and white crepe paper with designs of hearts and Cupids printed on it. This paper may be obtained at ordinary shops.

The center piece is be of red crepe paper in the shape of a heart, with red ribbons leading to each place.

The candle shades are of red paper hearts tied with red ribbons and small red hearts hanging from the corners. Little Cupids may be cut out of carboard and put at each place and also distributed over the center piece, which is filled with red roses.

Heart-shaped sandwiches, and ice cream moulded in the form of hearts may be served, among other things.

A Sure Shot.

A sporting gentleman, who had the reputation of being a very bad shot, invited some of his friends to dine with him.

Before dinner he showed them a target painted on a barn door, with a bullet right in the bull's-eye.

This he claimed to have shot at 1,000 yards' distance.

As nobody believed him he offered to bet the price of an oyster supper on it. On one of his guests accepting the wager, he produced two witnesses whose veracity could not be doubted to prove his assertion.

Since they both stated that he had done what he claimed, he won his bet.

During the dinner the loser of the wager inquired how the host had managed to fire such an excellent shot.

The host answered:

"Well, I shot the bullet at the door at a distance of 1,000 yards, and then I painted the target around it."

"I shall be dreadfully stupid now," said the wife, who had just returned from the dentist's.

"Why, so, my dear?" asked her husband. "I have had all my wisdom teeth pulled out," she replied.

"Of course, my love," said her husband, with the best intention in the world, "you know it is nothing but a superstitious idea that wisdom teeth have anything to do with wisdom. If you were to have every tooth in your head drawn, it couldn't make you any more stupid, you know."

He succeeded after a while in smoothing matters out, but it was a narrow escape.

Ruskin was once asked to aid in defraying expenses for a new chapel. In answer he wrote: "Sir—I am scornfully amused at your appeal to me, of all the people in the world the precisely least likely to give you a farthing. My first word to all men and boys who care to hear me is: 'Don't get into debt. Starve and go to heaven, but don't borrow. Try first begging. I don't mind, if it is really needful, stealing. But don't buy things you can't pay for. And, of all manner of debtors, pious people building churches they can't pay for are the most detestable nonsense to me. Can't you preach and pray behind the hedges—or in a sandpit—or a coal-hole—first?'"—Christian Register.

Dr. Hale declared once that he had had a special revelation. He was down in Maine with an agreeable company of fishermen, and he must needs leave the trout brook in order to get to Boston in time to prepare his sermon. As he thought of the old trout rod and the new sermon, the "revelation" suddenly came to him, something like this: "It is far better to preach a good old sermon than a poor new one. Edward Everett Hale, stay where you are, and go a-fishing!"

Patrick, coming into a street car, found only one seat vacant, and promptly took it. "It's looky I came when I did," he said. "That's so Pat," answered some one. "Bekase," he went on, "if I was comin' a second later, I'd be afther havin' crowdhed mesilf out of me sate!"

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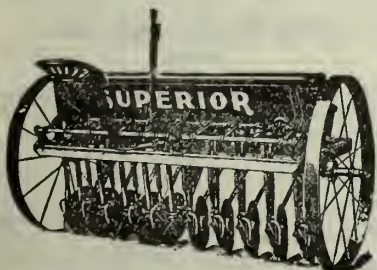
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STOCKTON, CAL.

THE MARKETS.

San Francisco, Feb. 5, 1913.

(Unless otherwise noted, quotations represent prices paid to the growers.)

Cereals.

WHEAT.

Some shading of prices has been reported in the north, but buying there is comparatively active, and the local market remains quite firm at the old quotations. There is no heavy movement here, but considerable wheat is still coming in from the north.

California Club	.....\$157½ @ 1.60
Sonora	..... Nominal
White Australian	..... Nominal
Northern Club	..... 1.57½ @ 1.60
Northern Bluestem	..... 1.67½ @ 1.72½
Northern Red	..... 1.62½ @ 1.70

BARLEY.

Arrivals are still very light, but offerings are sufficient for local needs, which are only moderate at present. Some easiness was noted in the spot market a few days ago, but there is a firmer feeling now, and the former quotations are well maintained.

Brewing and Shipping	...\$1.45 @ 1.50
Choice Feed, per ctn.	..... 1.32½ @ 1.40
Common Feed	..... Nominal

OATS.

All descriptions, both seed and feed, are very dull, and few buyers are willing to pay the prices asked. Holders, however, are not much disposed to make concessions, and quotations stand as before.

Red Feed	.....\$1.85 @ 1.90
Seed	..... 2.00 @ 2.10
Gray	..... Nominal
White	..... 1.60 @ 1.65
Black Seed	..... 2.20 @ 2.35

CORN.

There is a little firmer feeling this week in sympathy with an upward movement in the East, but local trading is light and values here show no quotable change.

Cal. Yellow	..... Nominal
Eastern Yellow	.....\$1.50 @ 1.55
Eastern White	..... Nominal
Kafir	..... 1.50 @ 1.55
Egyptian	..... 1.70

RYE.

There is nothing new in prices, which are now almost entirely nominal, as offerings are limited, and there is practically no trading.

Rye, per ctn.\$1.45 @ 1.50
---------------	--------------------

BEANS.

There is very little new development in the bean situation, the market being comparatively quiet, though there is still a fair inquiry for shipment to the East. There is a firm feeling in regard to prices on practically all lines, and quotations are slowly advancing. The only quotable advances this week are on blackeyes and large whites, though there has been a very good demand for small whites and pinks. Limas stand as before.

Bayos, per ctn.	.....\$3.25 @ 3.45
Blackeyes	..... 3.15 @ 3.25
Cranberry Beans	..... 4.70 @ 5.00
Horse Beans	..... 2.25 @ 2.35
Small Whites	..... 4.50 @ 4.65
Large Whites	..... 4.20 @ 4.35
Limas	..... 5.60
Pea	..... Nominal
Pink	..... 3.70 @ 3.90
Red Kidneys	..... 4.00 @ 4.25
Mexican Red	..... 4.00 @ 4.20

SEEDS.

Most of the lines quoted are quiet, though some varieties continue to move fairly well. All prices remain as for some time past.

Alfalfa	..... 16 @ 17 c
Broomcorn seed, per ton	.....\$29.00 @ 30.00
Brown Mustard, per lb.	..... 3¼ c
Canary	..... 4½ c
Hemp	..... 3½ @ 4 c
Millet	..... 2½ @ 3 c
Timothy	..... Nominal
Yellow Mustard	..... Nominal

FLOUR.

Prices are firmly held on the same level as for some weeks past. The local movement is on about the usual scale. The export trade of late has been fairly good, and there is still considerable movement to outside points.

Cal. Family Extras	.....\$5.60 @ 6.00
Bakers' Extras	..... 4.60 @ 5.20
Superfine	..... 3.90 @ 4.10
Oregon and Washington	..... 4.90

Hay and Feedstuffs.

HAY.

Arrivals have increased a little in the last week, and the local market shows somewhat more activity, though there is no important change in the situation, which is not altogether satisfactory to local dealers. Prices here show no change of any consequence. The movement in the interior has increased a little, especially on alfalfa, which is the cheapest feed available at present. The outlook will depend on weather conditions, supplies being sufficient for all requirements if the spring rainfall is normal, though continued dry weather would doubtless bring higher prices. Values are still comparatively high, tending to curtail the consuming demand. Crop conditions at present in the coast and Sacramento valley districts are good, and fairly satisfactory in the southern districts, though more rain will be needed soon.

No. 1 Wheat, or Wheat and Oat	.....\$18.00 @ 20.00
do No. 2	..... 15.00 @ 18.00
Lower grades	..... 12.00 @ 14.50
Tame Oats	..... 15.00 @ 20.00
Wild Oats	..... 12.00 @ 16.50
Alfalfa	..... 10.50 @ 13.50
Stock Hay	..... 9.00 @ 10.50
Straw, per bale	..... 35 @ 70c

FEEDSTUFFS.

There is a rather easy feeling in all lines, the demand being only moderate at present. Bran is still held at the old prices, but middlings and rolled oats are lower.

Alfalfa Meal, per ton	.....\$18.50 @ 19.00
Bran, per ton	..... 25.00 @ 26.00
Oil-cake Meal	..... 40.00 @ 41.00
Cocanut Cake or Meal	..... Nominal
Cracked Corn	..... 35.00 @ 36.00
Middlings	..... 34.00 @ 36.00
Rolled Barley	..... 27.00 @ 28.00
Rolled Oats	..... 35.00 @ 36.00
Shorts	..... 29.00 @ 30.00

Garden Truck.

VEGETABLES.

Onions are still quiet and easy, with excessive supplies, though values show no change. The market for general garden truck is still unsettled, arrivals of southern vegetables being very small and uncertain, with several lines practically out of the market. The occasional small arrivals of green peas, etc., bring extreme prices, and several other descriptions are high. Mexican tomatoes and green peppers showing an advance. Celery is also higher, though supplies are fairly large, and lettuce is lower on increasing receipts. Rhubarb is also easier, and large offerings of artichokes are expected before long. Small lots of asparagus arrive frequently, and still sell up to 75 cents per pound, though larger offerings are expected soon. Carrots and cauliflower have dropped sharply.

Onions—	
Yellow, ctn.	..... 50 @ 55c
Garlic, per lb.	..... 2 @ 3c
Tomatoes, per box	.....\$1.50 @ 1.65
Cucumbers, per box	..... 2.00 @ 2.50
Cabbage, per ctn.	..... 50c
Carrots, per sack	..... 50c
Cauliflower, per doz.	..... 40 @ 50c
Celery, crate	..... 2.00 @ 3.50
Rhubarb, lb.	..... 5 @ 7c
Mushrooms, lb.	..... 10 @ 25c
Artichokes, doz.	..... 75c @ 1.25
Sprouts, lb.	..... 6c
Green Peppers, lb.	..... 10 @ 15c
Lettuce, crate	..... 1.25 @ 1.75
Eggplant, lb.	..... Nominal
Green Peas, lb.	..... 22 @ 25c

POTATOES.

The local market is again badly overloaded, and buying is limited closely to immediate needs. Values are lower than for the last week or two. A large export movement is expected in the spring, but so far has had no particular effect on the market.

River Whites, ctn.	..... 35 @ 50c
Salinas, ctn.	.....\$1.00 @ 1.25
Oregon, ctn.	..... 65 @ 1.00
Sweet Potatoes	..... 1.90 @ 2.00

Dairy Produce.

POULTRY.

All values remain as before, hens remaining weak, with heavy arrivals from the East. Young stock, however, is firmly held, as offerings of such goods are light, and there is not much coming in from California points. Dressed turkeys find a fair demand and are firm as quoted.

Large Broilers, per lb.	..... 25 @ 26 c
Small Broilers, per lb.	..... 25 @ 26 c
Fryers, per lb.	..... 20 @ 22 c

Hens, extra, per lb.	..... 15 @ 17 c
Hens, large, per lb.	..... 15 @ 16 c
Small Hens, per lb.	..... 16 @ 16 c
Old Roosters, per lb.	..... 10 @ 12 c
Young Roosters, per lb.	..... 18 @ 22 c
Squabs, per doz.	.....\$3.00 @ 3.50
Geese, per pair	..... 1.50 @ 2.00
Ducks, doz.	..... 4.00 @ 6.00
Turkeys, dressed	..... 24 @ 25 c

BUTTER.

Arrivals have been running rather light, and the local demand appears to be in good shape, but a little easier feeling has been noted for the last few days, both extras and firsts being 1 cent below the last quotations.

	Thurs.	Fri.	Sat.	Mon.	Tu.	Wed.
Extras . . .	38	38½	39	37½	36½	37
Firsts . . .	35	35	35	35	34	34

EGGS.

The egg market has been subject to sharp fluctuations for the last week. Arrivals have been large, but a strong shipping demand from points up and down the Coast brought an upward movement, which culminated Monday. Since then, in the absence of shipping inquiries, prices have been sharply reduced and are barely steady as quoted.

	Thu.	Fri.	Sat.	Mon.	Tu.	Wed.
Extras ...	24½	24½	27½	29½	24	24
Firsts ...	22½	22½	25	27	22	23
Selected						
Pullets..	22	22	25	27	22	22½

CHEESE.

The cheese market shows little feature. Fancy flats are 1 cent below last week's quotation, but firsts and Y. A.'s are firm at the old figures.

Fancy California Flats, per lb.	.....16 c
Firsts	.....14 c
New Young Americas, fancy	.....18 c
Monterey or Jack Cheese	.....17 @ 18 c

Deciduous Fruits.

The market is still bare of everything but apples and pears, which stand in about the same position as before. The local demand is only fair on the average, and the market is heavily overloaded, with prospects of a large hold-over in the spring. Some of the stock is showing signs of deterioration and dealers are anxious to dispose of it. The best California stock now on the market is Newtown Pippins, the best lots of which are held at a slight advance. Otherwise values stand as before.

Apples: Fancy Red, box	..... 75c @ 1.25
Red Pears	..... 40 @ 60c
Bellefleur	..... 65c @ 1.00
Newtown Pippins	..... 60c @ 1.10
Greenings	..... 60 @ 75c
Common	..... 40 @ 60c
Pears: Winter Nelis	..... 2.00 @ 2.50

Dried Fruits.

The market shows little feature at present, as the demand for practically all lines is seasonably quiet. The Eastern trade is taking very little interest, and while packers are picking up a few odd lots in the country they appear in no hurry to increase their holdings. Evaporated apples show another decline on ordinary offerings, though fancy lots are quoted as before. There is hardly any demand, and holders of large lots are anxious to reduce their stocks. In other lines the strictly first-class offerings are rather firmly held, as supplies in general are limited, but more or less off-grade stock is being picked up at lower prices than have prevailed for the past few months. This is noted in white figs, peaches and prunes, on which the inside quotations are lower. Raisins are steady at the old figures. The New York Journal of Commerce says:

"While the market for dried fruits reflects a slack demand for goods on the spot or to be shipped from primary sources of supply, there is a firm undertone which prevents any material concessions from present quotations. The market on forward shipment California prunes remains on a 3-cent basis for 60s to 90s, with a quarter of a cent premium on 50s and 1¼c premium on 40s. Spot California prunes are moving slowly into consumption on small orders, but the feeling among holders is firm and prices are held closely up to the previous quotations on large sizes, though the spot, as well as the forward shipment market, is rather easy on intermediate counts. Apricots for shipment from the Coast are offered sparingly, and spot stocks are not being urged, but at present there is little demand and prices are somewhat nominal. As usual at this season, little buying interest in spot or future peaches is manifested. However, holders are not inclined

to force business and prices remain steady on the basis of previous quotations. California raisins receive little attention at present. The spot market is steady and Coast sellers decline to make concessions from the quoted prices on any variety."

(New crop.)

Evap. Apples, per lb.	..... 3½ @ 5 c
Apricots	..... 9 @ 10 c
Figs: White	..... 3½ @ 4½ c
Black	..... 3 c
Calimyrna	..... 4 @ 5 c
Prunes: 4-size basis	..... 2½ @ 3½ c
(Premium: 1c for 40s-50s; 2c for 30s-40s.)	
Peaches	..... 4 @ 4½ c
Pears	..... 4 @ 7 c
Raisins—	
Loose Muscatels in sweatbox	..... 2¼ @ 2½ c
Thompson's Seedless	..... 4½ c
Seedless Sultanias	..... 3 @ 3½ c

Citrus Fruits.

The extent of damage to the citrus crop in the southern part of the State from the three days cold wave the first of last month is now becoming more apparent. Instead of 50,000 cars of oranges and lemons being shipped, as was estimated early in the season, shippers now place the numbers at about 10,000 for the season, of which one-half has already gone to market.

The Eastern auctions show a lower average in price than a week ago. At New York on Monday, January 3, navels averaged from \$1.15 to \$2.80 per box. At Philadelphia the same day navels sold from \$1 up to \$2.90. Florida oranges averaged \$1.50 per box. Boston auction showed a trifle higher average than New York. Lemons are bringing good prices, averaging nearly \$7 per box.

Shipments from southern California have been running at about 80 cars of fruit per day.

Dealers at San Francisco are looking for a rather better demand for oranges, though the local consumption at present is light, possibly owing to the reports of frosted fruit. The latter is so marked, but is sold in considerable quantities in a peddling way, and this doubtless curtails the demand for higher priced stock. All lines of oranges are plentiful, and prices stand as before. Grapefruit is firm, and lemons are very strong, with light supplies, values being somewhat higher than before. Limes are still about out of the market, and small-sized lemons sell at \$5 to \$6 per box.

Oranges, per box—	
Navels, good to fancy	.....\$1.25 @ 3.00
Frosted	..... 50c @ 1.00
Tangerines	..... 1.00 @ 2.50
Grapefruit, seedless	..... 2.50 @ 4.50
Lemons: Fancy	..... 6.50 @ 7.00
Choice	..... 6.00 @ 6.50
Limes	..... Nominal

Nuts, Honey, Hops, Etc.

NUTS.

The market shows no new feature, jobbing prices being firmly held, with very light supplies of California stock.

Almonds—	
Nonpareils	..... 17½ c
I X L	..... 16½ c
Ne Plus Ultra	..... 15½ c
Drakes	..... 12½ c
Langueodoc	..... 11½ c
Hardshells	..... 8 c
Walnuts, 1912 crop—	
Softshell No. 1	..... 16 @ 16½ c
Hardshell No. 1	..... 15 @ 15½ c
No. 2	..... 10½ c
Budded	..... 17 c

HONEY.

Fancy water-white stock is scarce and largely nominal, but other grades are in fair supply, the local demand being limited at present. Values stand as before.

Comb, white	.....12½ @ 14½ c
Amber	.....10 @ 12 c
Dark	.....9 @ 10 c
Extracted, white	.....8 @ 9 c
Amber	.....6 @ 6½ c
Off Grades	.....5 @ 6 c

BEESWAX.

A little inquiry for shipment is noted, the first in a long time, and local dealers are quoting a slight advance. So far, however, there has been no movement of any consequence, and there is probably enough on hand for all requirements.

Light	.....30 @ 31 c
Dark	.....25 @ 26 c

HOPS.

The crop is now pretty well cleaned out of growers' hands, but dealers still note more or less inquiry from the East. There is little business, however, as buy-

ers are not inclined to meet the views of holders. The statistical position of the market is considered strong.

1912 crop12½ @20 c
WOOL.

There is no movement of California wool at present, and buyers are waiting for spring shearing to start before taking any active interest in the market.

Fall Clip:
Northern and free Mendo-
cino12 @14 c
Lambs 9 @13 c
San Joaquin and Southern. 6 @10 c
Mohair15 @28 c

HORSES.

Recent offerings of first-class stock have been very well received, finding ready sale at prices fully up to those quoted last week, and increasing activity is expected during the spring. There is considerable inquiry from the country, and outside buyers have picked up a good many horses here of late. This week's sales consist mostly of condemned and foot-sore city horses, which find a fairly good sale for country use.

Heavy drafters, 1700 lbs. and over\$300@350
Light Drafters, 1500 to 1650.... 250@285
Chunks, 1350 to 1500 lbs..... 200@250
Wagon Horses, 1250 to 1350.... 180@225
Delivery Horses, 1050 to 1250... 125@150
Desirable Farm Mares..... 100@125

Live Stock.

The decreasing arrivals of hogs in the local market have caused a general advance in this line, and live sheep and lambs are also quoted a little higher. Dressed meats, however, show less firmness, and mutton has been marked down.

Steers: No. 1 7 @ 7¼c
No. 2 6¼ @ 6¾c
Cows and Heifers: No. 1.... 6 @ 6¼c
No. 2 5¼ @ 5¾c
Bulls and Stags..... 2½ @ 4½c
Calves: Light 7¼c
Medium 6¾c
Heavy 5 @ 6 c
Hogs: Grain-fed, heavy..... 7 @ 7¼c
150 to 250 lbs..... 7¼ @ 7½c
100 to 150 lbs..... 7 @ 7¼c
Prime Wethers 5½ @ 5¾c
Ewes 4½ @ 4¾c
Lambs 6¼ @ 6½c

DRESSED MEATS.

Steers 11½ @ 11¾c
Cows 10½ @ 11 c
Heifers 11 c
Veal, large 10 @ 11 c
Small 12 @ 13 c
Mutton: Wethers 10 @ 11 c
Ewes 9 @ 10 c
Spring Lambs 12 @ 13 c
Hogs, dressed 11 @ 12 c

HIDES.

Trading is still rather limited, but values are fairly steady at the recent decline.

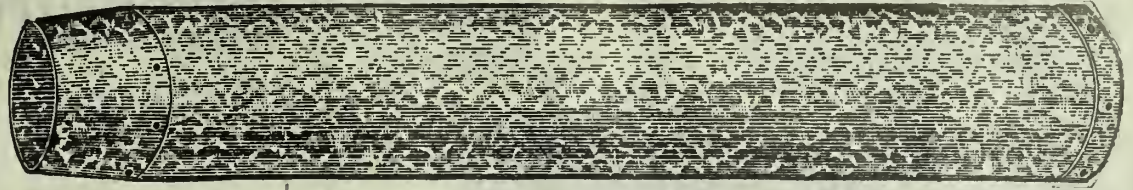
Heavy Steers, over 56 lbs. 14 c
Medium 13½c
Light Steers, under 48 lbs. 12½ @ 13½c
Heavy Cows, over 50 lbs.. 12½ @ 13½c
Light Cows, 30 to 50 lbs.. 12 c
Kip 14½ @ 15½c
Veal 17½ @ 18½c
Calf 17½ @ 18½c

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Dry Hides 23 @ 24 c
Dry Kip, 10 to 15..... 24 @ 25 c
Dry Veal, 5 to 10..... 29 c
Dry Calf, 7 down..... 29 c
Horse Hides—
Salt: Large \$2.25
Medium 1.75
Small 75c
Colts 25 @ 50c
Dry 75c @ 2.00
Sheep Skins—
Long Wools \$ 0.85 @ 1.25
Medium Wool, 6 to 9 mos.. 60 @ 90c
Short Wool, 3 to 6 mos... 40 @ 60c
Lambs 35 @ 70c

SANTA BARBARA HORTICULTURE.

The latest monthly report of C. W. Beers, County Horticultural Commissioner of Santa Barbara, contains some interesting facts about frost injury and investigations on walnut pests and other matters. The report states: "The cold weather that worked such damage to the citrus growers in other sections has not injured the industry in this country to any great extent. A careful inspection of orchards shows damage of a severe nature in only a few orchards; many having escaped any evidence whatever. No mature trees are seriously injured, and very few young trees. In the nursery rows and in some seed bed stock, a slight injury has resulted. The industry has suffered a loss estimated between 10 and 12% in tonnage, but this loss is more than compensated for in the advance in price of fruit. This increase, unfortunately, does not come into the hands of those whose crop is injured, but benefits the ones whose orchards escaped frost effect."

The work of the University of California in the control of walnut blight is progressing in Santa Barbara county and arrangements have been made for co-operative experiments with different growers. The work of the County Horticultural Commission on the effect of lady-bird in checking the walnut aphids has shown that this method of control is unsatisfactory.

PRODUCTION OF BREEDS.

That a good dairy cow is a good dairy cow irrespective of what breed she belongs to was demonstrated in a two years' dairy competition recently completed. Under the rules of this competition, 197 cows were tested, 139 of which completed yearly records. Nearly all were pure-bred.

Those completing yearly records were 57 Holsteins, including 8 grades, 40 Guernseys, including 10 grades, 27 Jerseys, including 3 grades, and 15 Brown Swiss, only 5 being purebred. The cows belonged to only a few herds and the results are nearer what we would expect on average dairies than if especially fine cows were picked out. It was a handicap contest, the cows being credited to some extent as to age.

The winning animal was a Jersey with

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a credited production of 738.8 lbs. fat, actual production 564.85 lbs. Second prize went to a Holstein with an actual production of 713.21 lbs., and third prize to a Guernsey, about as even a distribution as far as breeds is concerned. The Holstein, in the four-year-old class was the best producer in the lot, having an actual production greater than any cow in the five-years and over class.

PUBLISHER'S DEPARTMENT.

The Hopland Stock Farm is sending out the nicest advertising matter that we have seen. The folder illustrates the whole of the poultry department, which is the best equipped of any in California. The farm is located one mile east of Hopland, Mendocino county, and has now 8000 laying hens, besides chicks and roosters. This poultry plant was established by the owner, both for utility and educational purposes, and visitors are always welcome.

The Germain Seed and Plant Co. of Los Angeles are sending out their handsome annual catalogue, which covers seeds, flowers and ornamental plants. Besides the numerous activities of this firm in nursery lines, it has organized the Germain Farm Lands Company, capital stock \$1,000,000, and will buy and develop large tracts for settlers. Full details of the plan are given in the catalogue. Send for it.

The new edition of "California Vegetables" will not be ready for distribution as early as we anticipated last month. Owing to a multiplicity of duties, Prof. Wickson has not been able to devote the time to revising the work that he feels it needs. However, progress is being made, and we anticipate being able to place the copy in the printer's hands very shortly and can then tell more definitely how soon we can fill orders.

Read the PACIFIC RURAL PRESS critically

this week. We believe it is a fine issue. Every department has good suggestions for you. Many readers ought to make this single issue worth dollars, by following up these ideas.

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AND HOW TO GROW THEM

SIXTH EDITION
REVISED TO DATE

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Dean and Professor of Agriculture in the College of Agriculture of the University of California; Director and Horticulturist of the University Experiment Station; Author of "California Vegetables in Garden and Field"; Editor PACIFIC RURAL PRESS; member National Council Horticulture, etc.

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Size of page, 6x9½, 600 pages, bound in cloth and fully illustrated.

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The Pacific Rural Press

PUBLISHERS

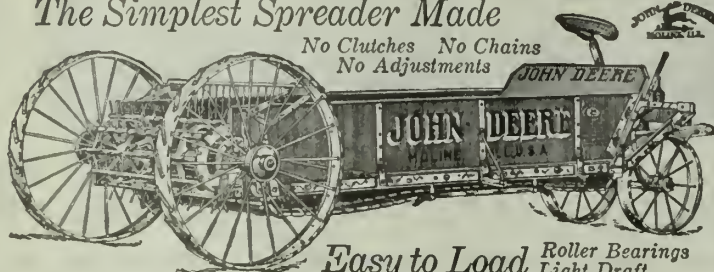
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John Deere Spreader

The Spreader with the Beater on the Axle

The Simplest Spreader Made

No Clutches No Chains
No Adjustments



Easy to Load Roller Bearings
Light Draft

Decided Improvement in
Spreader Construction

Up to this time every spreader on the market has been constructed along the same general lines.

The John Deere Spreader, however, is different. It is entirely new and there is nothing else like it on the market.

All the working parts are mounted on the main axle. There are no strains and stresses on the sides or frame and no clutches or chains to give trouble.

The John Deere Spreader is low down, easy to load, very simple, and always ready for business. It cannot get out of order.

three feet. Thus, the hard work of loading a manure spreader is done away with. Besides, the person doing the loading can see inside the spreader at all times. Each forkful is placed exactly where it is needed.



Easy to Load

No Adjustments

On the John Deere Spreader no adjustments are necessary. On the simplest spreader heretofore made, it was always necessary to make from ten to twenty adjustments before the machine would work at all.

The John Deere Spreader is thrown in gear by moving a heavy dog back until it engages a stop at the rear of the machine. No clutch used.



Out of Gear

Positive Non-Racing Apron

By the use of a very simple locking device inside the ratchet feed, the apron is positively locked against racing when spreading up hill or over exceedingly rough ground. The result is that when spreading with the John Deere Spreader the manure is always spread evenly. This is not possible on any other ratchet feed spreader made.

Change of Feed

Change of feed is accomplished by a double shoe which is moved from the seat. This shoe determines the number of teeth the ratchets engage at each stroke. The John Deere Spreader has a variation of from five to twenty-five loads to the acre.

Substantial Steel Frame, Like the Modern Railway Bridge

Both the side sills in the John Deere Spreader are of high carbon channel steel with the channels turned to the inside. Into these hollows are fitted four large wooden cross sills. Being bolted, these cross sills can be kept tight, insuring rigidity and alignment of frame at all times.



Built Like a Steel Bridge

Beater on Axle

All the working parts on the John Deere Spreader are mounted on the rear axle. There are no independent studs or shafts to give trouble, nor chains or sets of gears to get out of order. All strains and stresses are borne by the main axle and are not transmitted to the side of the box or the frame of the spreader.

Power to drive the beater is taken from the rear axle and operates through a planetary transmission (similar to that used on automobiles) mounted on the rear axle within the beater.

Light Draft—Few Parts

There are at least two reasons why the John Deere Spreader is the lightest draft spreader made. One is that it has four sets of roller bearings; two in the front wheels and two on the main axle and beater. They reduce the draft materially.

Another reason is that the John Deere Spreader has so few parts. It has about 150 less types of castings than the simplest spreader heretofore made. It is only natural that the fewer parts a machine has, the easier it will operate.

When the John Deere Spreader is out of gear, it is simply a wagon.

Easy to Load

The first three feet manure is lifted with an ordinary spreader are easiest of all. The real hard work is from this height to the top of the ordinary spreader.

The John Deere Spreader is low down. It is only necessary to lift each forkful

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Layne-Bowler Pumps

always give satisfaction because they always prove cheapest in the long run. Our many follow-up orders from people who have used our pump before prove this.

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If economy and money saving is any object to you, you owe it to yourself to investigate the Layne-Bowler Pump.

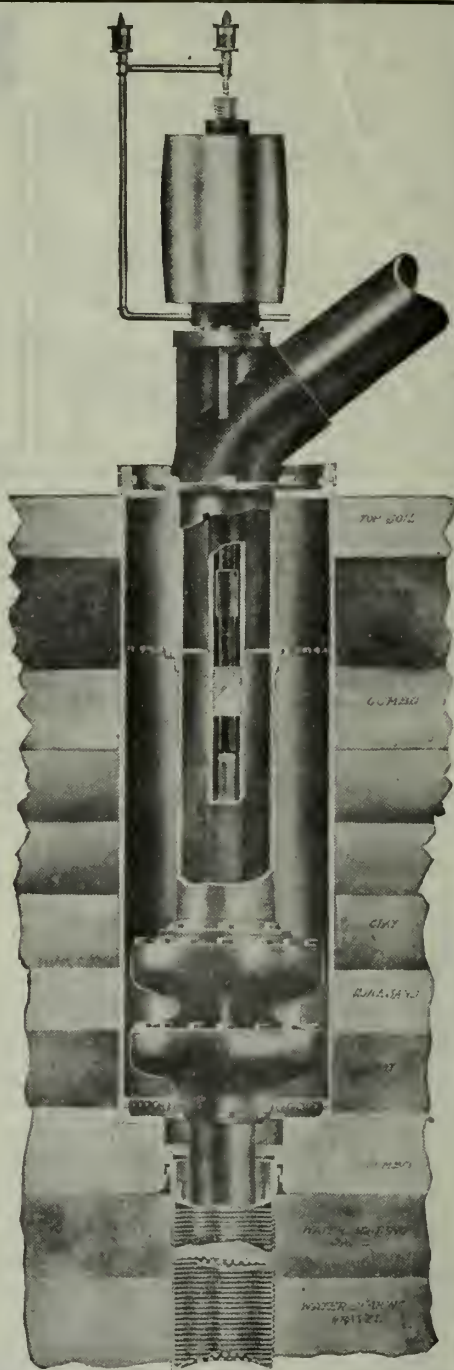
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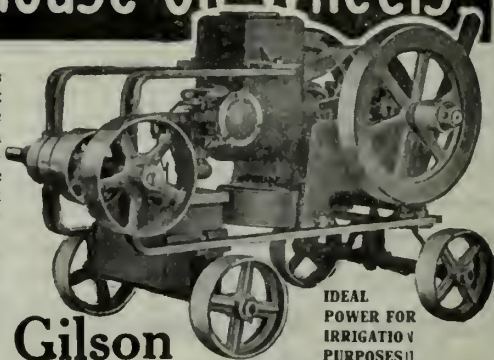
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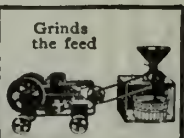
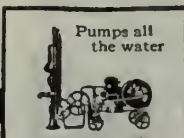
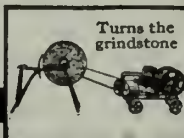
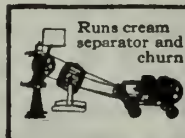
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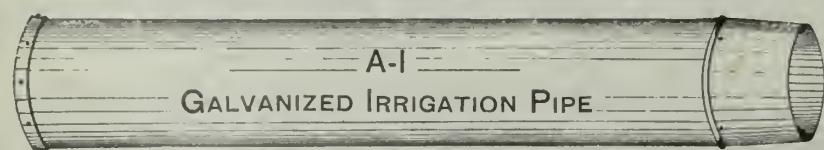
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THE PACIFIC RURAL PRESS

Vol. LXXXV. No. 7.

SAN FRANCISCO, SATURDAY, FEBRUARY 15, 1913.

Forty-Third Year.

Real Overproduction Impossible.

[BY OUR ASSOCIATE EDITOR]

Some time ago we were trying to figure out how much of an acreage could be planted to a certain fruit that is extensively dried before it would be overproduced, before the market would be glutted. We found that a real overproduction was impossible in that dried fruit and in every other dried fruit and every nut grown in California. It is perfectly true that there is not a fruit grown in California that has not at some time in its history faced ruinous prices, apparently through overproduction. Dried peaches last year were just about as near "overproduced," if low prices mean anything, as the grower would care for; apricot prices were certainly nothing glorious, though not so bad, raisins nearly every year are "produced too abundantly," and, judging from packers' tactics, prunes are close to the ragged edge.

In the realities, the only way to look into a real overproduction is

we ever think of importing, and serious competition from other parts of the world is impossible in nearly every dried fruit, and further development of foreign markets could be accomplished as readily as a further development of home markets.

Average Appetite.—The last census of the United States showed a population of something over 90,000,000, excluding possessions. Dividing these prunes among 90,000,000 persons, it means that if there were a uniform use of prunes all over the country each person would eat only 2 pounds 2 ounces with a very big crop, and this is the most important dried fruit there is.

Raisins are the next largest dried fruit. With the bumper crop the average individual would get rid of all his share if he ate enough raisin bread, puddings, the raisins themselves, etc., to use up two pound cartons. In fact, quite a few people, one out of ten, would have to go without the second carton.

These are the biggest dried fruit crops. The peaches, which are third in quantity, would go only a little ways. To get his share, each man



Prune Blooming in the Santa Clara Valley.

to see how many are produced, how much of a population there is to consume the product, whether the product has sufficient merit to justify common use. There is no one who would care to deny that our California dried fruits are worthy of a place on the table of every American as a dessert several times a week. They are cheaper than most of the puddings and pastry that is used for dessert, more attractive, easier prepared and immensely more healthful. In fact, fresh fruit or preserved fruit is the very best thing for every person to use.

California Production.—A comparison of production with population shows that the per capita consumption of dried fruit is ridiculously small. California last year produced almost a record yield of nearly every fruit product. An approximate yield of the various dried fruits and nuts is: Prunes, 194,000,000 lbs.; raisins, 170,000,000 lbs.; peaches, 54,000,000 lbs.; apricots, 37,000,000 lbs.; figs, 6,000,000 lbs.; walnuts, 18,500,000 lbs.; almonds, 6,000,000 lbs.; miscellaneous, 6,000,000 lbs. This includes practically all the dried fruit produced in the United States, or at least the amount produced elsewhere, excluding apples, is so small as to be disregarded when divided among the total population of the country.

It is likewise a fact that to consider America alone as a market is the strictest method of figuring, as we export far more dried fruit than

could buy only a little more than half a pound. As a matter of fact, a family of five would have to go without more peaches after they had consumed in the whole twelve months a three-pound package of dried peaches.

We ship an awful lot of apricots away. If we did not, that family could get two pounds of dried apricots to go with their peaches. In other words, a full crop of apricots and peaches together would give each person only one pound for 365 days. Where do they get their fruit, anyway; or do they do without? There is not enough canned fruit produced to fill up everybody for a full year.

The incidental fruits, like pears and figs, will have to be counted by ounces. Those 10,000,000 pounds of figs make about an ounce and a half per person, the 6,000,000 pounds of miscellaneous fruits make just about an ounce per individual. Walnuts are produced abundantly to give three ounces per person, almonds one ounce.

Prunes No Joke.—Prunes have been the joke of the alleged humorists too long; with the small helpings each one must get, the boarding-house keepers cannot get rid of very many pounds. Two pounds of 60's, which possibly are the average size, make 120 prunes, or with the ounce or so over two pounds, the average individual eats about 128 prunes of an

(Continued on Page 202.)

Pacific Rural Press

Issued Every Week at 420 Market Street, San Francisco.

TWO DOLLARS PER YEAR IN ADVANCE

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CALIFORNIA WEATHER RECORD.

The following rainfall and temperature record is furnished the PACIFIC RURAL PRESS by the United States Department of Agriculture, Weather Bureau, at San Francisco, for the week ending at 5 p.m., February 11, 1913

Stations.	Rainfall Data.			Temperature Data.	
	Past Week.	Seasonal to Date.	Normal to Date.	Maximum.	Minimum.
Eureka .....	.00	24.87	27.41	62	44
Red Bluff .....	.00	13.21	15.33	70	38
Sacramento .....	.00	5.38	12.01	66	42
San Francisco ..	.08	8.90	14.19	66	46
San Jose .....	.03	3.96	10.08	68	40
Fresno .....	.26	2.79	5.77	68	40
Independence ..	.78	1.81	5.65	60	22
San Luis Obispo ..	.24	4.79	12.07	68	44
Los Angeles	1.40	4.35	9.30	72	44
San Diego .....	.53	3.44	6.04	68	50

The Week.

We have neither rain nor prophecy this week with which to console ourselves withal. It is true that there has been some water at the extremities of the State and the ducking which the south drew down from the Mexican storm system is good and very well placed. We do not wonder that it has been hailed as the best thing since the freeze. The central regions of the State have to content themselves with the thought of the good amount of snow in the mountains and take other things as they may come. Work is being pushed along and everything put in as good shape as possible to get the fullest service from the later rains. The weather is very favorable for assemblies of farmers to consult with legislators about their relations to various proposed enactments, and all readers should give heed to announcements of such conferences when made for their districts. We hear that there may be such a meeting at Lodi on Saturday of this week at which particular attention will be given to the Accident-Liability act which is before this legislature in new and most elaborate form, and it is likely that it will require some little scrutiny to tell just how it will affect agricultural employers. We hope therefore that the proposed Lodi meeting will be held and a good near-sighted committee appointed. The legislative committee of the grape growers in the Lodi region has fortunately taken leadership in this liability problem and others will be looking for the results of their deliberations.

We shall have some interesting figures next week of the make-up of California citizenship as shown by the last census. One gratifying fact is that just one-half of the white Americans in the State are native sons and daughters of California. This explains, among other things, why it is that we hear so much less about "back East" than we did a few years ago. California is productive of people as of other desirable things and a popula-

tion largely born on the land is her destiny. The age of the pioneers is rapidly closing and their offspring is occupying the land. Of course the imminent question now is how births will compare in numbers with accessions by the Panama canal. It is possible that the next census will show California-born in smaller ratio than the last. This is not a foregone conclusion, but evidently all Californians must do their duty.

Le Cercle Citrique.

At this moment a special train, swinging around the circle of the Southern Pacific railway in southern California, is carrying a load of University executives and pomological experts for conference with citrus fruit growers concerning problems arising from their recent experience with low temperatures. Arrangements for the shipment of this precious cargo of wisdom and good intentions were so quickly made that it was not possible to give adequate preliminary announcement in the horticultural journals, and therefore the work will be more than half over before it will be possible for these journals to carry the news to Garcia, and this unfortunate individual will be dependent upon what he can learn from local journals and from placards on the railway stations and the packing houses. For the sake of the record of this unique relief expedition from the University, we print the itinerary, although by the time it reaches our readers it will be rather more history than prophecy:

Place.	Date.	Duration of Visit.
Duarte	Thurs., Feb. 13..	9:00 a.m. to 10:00 a.m.
Monrovia	"	10:15 a.m. to 11:15 a.m.
Arcadia	"	11:30 a.m. to 12:30 p.m.
Pasadena	"	2:00 p.m. to 3:00 p.m.
San Gabriel	"	3:30 p.m. to 4:30 p.m.
Covina	"	7:30 p.m. to 9:00 p.m.
Charter Oak	Fri., Feb. 14..	9:00 a.m. to 10:00 a.m.
San Dimas	"	10:15 a.m. to 11:15 a.m.
Lordsburg	"	11:30 a.m. to 12:30 p.m.
Pomona	"	1:30 p.m. to 3:00 p.m.
Ontario	"	3:15 p.m. to 5:00 p.m.
Pomona	"	7:30 p.m. to 9:00 p.m.
Bloomington	Sat., Feb. 15..	9:00 a.m. to 10:00 a.m.
Colton	"	10:30 a.m. to 11:30 a.m.
San Bernardino	"	1:00 p.m. to 2:30 p.m.
Redlands Junction ..	"	3:30 p.m. to 5:00 p.m.
Redlands	"	7:30 p.m. to 9:00 p.m.
Grafton	Mon., Feb. 17..	9:00 a.m. to 10:00 a.m.
High Grove	"	11:30 a.m. to 12:50 p.m.
Riverside	"	7:30 p.m. to 9:00 p.m.
Fernando	Tues., Feb. 18..	10:30 a.m. to 11:30 a.m.
Whittier	"	1:35 p.m. to 3:00 p.m.
Anaheim	"	3:30 p.m. to 5:00 p.m.
Santa Ana	"	7:30 p.m. to 9:00 p.m.

The purpose of the expedition by the University experts is to learn: mayhap to teach. It is an effort to get close to the people and to understand through actual contact what they regard as timely and important and to allow experts and research men to see by first sight the chief phases of the situation. Too much of our agricultural wisdom still comes from "second sight," and too many of our agricultural seers are still well-intentioned cranks. This trip is to give the missionary a real sight of the heathen and their works and, incidentally, to give the heathen a fair whack at the missionary. The value of the undertaking will be measured by the number of casualties on both sides.

What to Do With Frosted Fruit.

A correspondent for whose insight and genuineness we have the fullest respect demurs, in another column, to our recent characterization as "silly,"

the imputation of poisonous character to frosted oranges. He writes from a point of view which we did not occupy at that time, and is of course welcome to state what he sees from it. We are still firm in our belief, however, that to rush to the term putrefactive as descriptive of the earlier fermentations in a frosted fruit, is going farther from the actual truth on one side than we could possibly have been on the other. Eaters are protected by their senses from putrefaction in most cases; there may be subtle putrefactions, of course, in some substances of which the senses do not always warn the eater, but we do not believe they attach to fruits—certainly not in the earlier stages of fermentation during which they might commend themselves to the taste. Our argument must be based upon common experience, in the absence of specific experimentation, and the undisputed fact that no healthy person has been reported to be poisoned by frosted fruit of any kind satisfies us of the innocence of the material. This being the case, why should not the consumer have frosted fruit if he desires it while sound fruit may be far beyond his purchasing power because of scarcity? Suppose the fruit has frost lesions below one-fifth of the area of a cross-section, shall both the grower and the consumer lose what benefit there may be in it to both—providing the fruit is clearly indicated to be defective and no one is deceived? Of course there is another very important question of policy involved which we are not discussing at this time: will the sale of defective fruit injure our reputation as honest and high-class producers of sound fruit? That is a more important question than any man's present comfort, and we would be inclined to declare that if there could be some way to prohibit the sale of a pound of defective fruit of any kind, it would be a good thing for the State. If that is the issue, why not fight for it fairly? We are getting a little warm over efforts to reach that result by imputations, inspections at distant points, condemnations, etc., on the ground that frosted fruit is poisonous—which is neither warranted by experience nor supported by reason.

We are glad to note that the assurance which we gave in these columns several weeks ago that frozen oranges could be plowed under for the good of the soil without danger to the trees, has been affirmed by a large amount of experience which has been collected by some of our industrious contemporaries. Some growers have claimed that the fruit can be covered in in considerable masses without danger, but a good scattering and insulation of fruit with soil still appeals to us as the better practice, and the use of lime would usually be worth its cost for its own sake as well as for its destruction of possible acidity. We surely would not waste the frozen fruit as a source of humus and lose the cost of hauling as well. According to current announcements, there is quite a little doing at the south in outfitting for the manufacture of citrus by-products. It might be a little risky as a personal investment, but corporate or co-operative efforts could probably fight the problems to a satisfactory finish, although they will not be altogether easy from an economic point of view. Such efforts have been discussed at the south for years, and if the present spur in the side should result in successful establishment of by-product industries it would be a permanent advantage to the State. The citrus industry has been very wasteful all along, but the way to save some money without losing more has not hitherto been clear. Of course, by-product industries are not dependent upon frosts for materials; there is always much fruit which it would be an advantage not to place on sale, for the hotel tables cannot use all of it.

Two Citrus Fairs.

It is an interesting coincidence, in view of the rather gloomy character of the preceding paragraphs, that during the coming week there will be two notable citrus fairs held in this State—about 500 miles apart in an air line and still far from the ends of the State in both cases. One will be in San Bernardino, and it will be a good place to see what fine fruit escaped the southern frosts. The display will open February 17 and continue until February 22. In the upper part of the State the citrus display will be made at the twenty-first annual exhibit of the Cloverdale Citrus Fair Association, which is to be opened on Wednesday, February 19, and finish the week. Cloverdale, it will be noted, has come of age in citrus affairs, and yet the locality is not largely in the commercial interest. The people prefer to take the orange socially and decoratively, although enough fruit has been sold to determine that it is good by that severe test. This year the Cloverdale people propose to emphasize their immunity from citrus freezing by making the most creditable display they have ever arranged. The fruit at Cloverdale is locally described as of exceptional quality and coloring, and was not harmed by the recent cold snap. Certainly Cloverdale deserves well of the State for her joyous and disinterested citrus quality. The people do not care whether you try to buy any land or not: they like it too well for themselves. Another indication of the distinctive and high-toned character of the Cloverdale fair comes by telegraph in these words: "Rev. Robert Newton Lynch, vice-president and general manager of the California Development Board, will make the opening address on Wednesday evening."

Long-Lived Irrigation.

Harking back to Dr. Galloway's explosion on the longevity of irrigated farming (which threw two cabinet officers into the arms of their stenographers and otherwise cast a spot upon the setting sun of Mr. Taft's administration), we must remark that it is fortunate that we now understand just what Dr. Galloway meant by saying that he "never knew of long continued irrigated agriculture anywhere in the world." We know just what he meant, because Secretary Wilson tells Secretary Fisher so in a diplomatic letter. He says Dr. Galloway meant that "in many parts of the world where arid conditions prevail, such as Asiatic Turkey, Persia, Afghanistan, the extreme western portion of India, parts of North Africa and our own Southwestern country, irrigation agriculture has had its periods of rise and decline." We thought as much. In other words, Dr. Galloway has been mousing around in remote antiquity when empires wrought by conquest achieved wealth and luxury which weakened their possessors and barbaric hordes rushed in upon an easy prey. Empires crumbled into dust, not because irrigation failed, but because irrigation made them so rich that they had no more tensile strength than a fruit cake. When the barbaric conquerors became hungry after their gluttony, they in turn went to work for a living, and a new irrigated agriculture arose upon the ruins of an old one—using, in some cases, the very irrigation works which their forgotten predecessors had constructed. To our mind, these facts indicate not the short life of irrigated agriculture, as Dr. Galloway concludes, but the everlasting persistence and longevity of it, in spite of the degradation and subjugation of recurring races and nations, with which irrigation had nothing to do except that it made them worth subjugating. Dr. Galloway simply commits the historic error of mistaking an effect for a cause.

Queries and Replies.

Querists must submit full names and addresses.

Insufficient Evidence of Suitability for Fruits.

To the Editor: I enclose a copy of a soil analysis, also a copy of the daily maximum and minimum temperature for a period of four months, September to December. I am told that the maximum temperature of July and August is about ten degrees hotter than September. The situation is on the desert east of Daggett in San Bernardino county. I desire your opinion as to the best kinds of fruit to plant in that place.—W. H., Los Angeles.

The analysis indicates a soil of sufficient suitability. The determining factor, however, for the growing of fruits is not the soil but the local climate. Your outline of meteorological observations indicates suitability for hardy fruits like the pear, apple, plum, quince, and possibly other deciduous trees; that is, providing the climate from year to year is faithfully represented by these operations, which are, so far as we can judge, for one season only. Observations covering a number of years are necessary, however, for safe conclusions. Beyond this, observations for the months indicated are not those most important, because the success of fruit trees and their ability to bear fruit are both more closely conditioned upon spring temperatures than upon autumn or summer records. In fact, it is necessary to know winter temperatures not only as relating to the actual killing of a dormant tree, but to determine whether there come during the winter seasons high temperatures which cause the tree to become alive, followed by low temperatures which destroy the growing tree or the fruit which may be developed upon it. Both these conditions are liable to be encountered on plateaus in Nevada and in parts of California which may be influenced by conditions east of the mountains. That is, there may be a high January temperature which may cause buds to swell and blossoms to bloom and put forth fruit, followed by hard freezing which will in extreme cases kill the tree. Only a record of winter and spring temperatures would indicate whether you are subject to such conditions or not. The conclusion must be that the data you have secured is not enough to serve as a basis for judgment.

The safest way to proceed in planting is to endeavor to ascertain by observation what kinds of fruit have been planted in the region during previous years and what success has been attained with them. Before undertaking any large investment, you should make such a search for your own protection. If it is simply a question of planting a few trees for home use, proceed with it, understanding that the planting is experimental and subsequent larger investment is to be made or not according to the demonstration thus reached.

Of Course You Must Preserve Every Issue!

To the Editor: I have been a subscriber to your paper for a short time only, but appreciate it very much. It is far and away more satisfactory to a Westerner than Eastern farm journals, since it deals primarily with things as they are at home. Do you get out an index so that it would be of value to save and bind the Press?—R. H., West Butte.

Thank you for discerning so quickly the distinctive quality in our journal. Of course you must preserve every issue. The index appears in the last issue for June and for December of each year and thus makes reference easy—two volumes a year. The RURAL PRESS is an agricultural encyclopedia, increasing at the rate of more than a thousand large pages a year and has no equal as a source of information, because it is local, ac-

curate, and always up to date. If inconvenient to patronize a book-binder, just take a small awl and a piece of strong twine, or of fine picture wire or of thin copper wire; arrange the copies with edges even all around and the index issue at the back; sew the bunch through three awl-holes put through a little less than half an inch from the back edges; glue a cover of strong paper to the back edges, and you have the whole contents ready for easy reference. If we ever hear of a subscriber kindling a fire with a copy of the RURAL PRESS, we shall urge the publisher to stop his subscription. We work hard for thoughts that burn, but not for thoughts to burn.

Semi-Tropicals in the Bay Region.

To the Editor: Can you tell me if it is possible to succeed with the growing of avocados in Santa Clara or San Mateo counties? Do you know whether there are any such trees in those counties? Do you consider San Mateo county better protected from low temperatures than other locations around central California? Are there any locations such as isolated valleys or terraces that can be said to be "frostless" in central California?—C. S. D., Lafayette, Ind.

We are not aware that it has been determined whether the avocado is satisfactory in San Mateo county. Often in places where the tree is not injured by frost it has refrained from bearing. There are certain elevations in the southern part of San Mateo county, places where frost is exceedingly light and in many years absent. The same thing is true of the elevations around the Santa Clara valley, which is mostly within the limits of Santa Clara county. In fact, Santa Clara county has probably more situations such as you describe than San Mateo county has. There are also thermal situations on the east side of the bay in Alameda county. There is, however, no such situation around the bay of San Francisco in which the growing of semi-tropical fruit has been carried to commercial dimensions. There are thermal situations also on the foothills of the Sacramento and San Joaquin valleys, and these are perhaps better adapted to semi-tropicals than the situations around the bay, because these fruits require not only freedom from frost, but sufficient summer heat to develop acceptable qualities. For the growing of such fruits, a place must not only be free from cold, but rather full of summer heat. The bay district is scant of both cold and heat, except as one or the other is increased by local topography.

Pollination of Pears.

To the Editor: Will you kindly tell me whether it is necessary in growing the Doyenne du Comice pear successfully, to put some other pear near for the purpose of pollination in order to make it successful? We are planting about 40 acres of pears this year, and of these about 5 are of the Comice pear, and I have heard in a roundabout way that it is necessary that I have another pear before they will grow well. Will the ordinary Bartlett pear do for pollination? While I am perfectly willing to put in 5 acres of Comice, I do not want to put in 10 acres of winter pears, that is to say, 5 acres Comice and 5 acres of another pear for pollination purposes.—Planter, San Jose.

It is possible to say that the Comice pear blooms with the Bartlett, and would therefore presumably be of pollinating benefit to the Bartlett if the latter should require such treatment. Common experience in California, however, is that the Bartlett is self-fertile and not self-sterile as it is commonly reported in Eastern publications. California practice is, then, to plant Bartletts solidly without reference to preparation for pollination. Taking the matter the other way around, the Bartlett will do for pollination of the Comice probably, if that should be necessary.

California Soil Bacteria.

[By OUR ASSOCIATE EDITOR.]

Those who have read that article on fertilization which introduced soil bacteria will remember that these infinitesimal plants are just about the best things there are for a soil. Now California must always have the best of everything there is, and our present topic will be the surpassing excellence of California soils for bacteria.

For the best development of these little plants, some things are necessary, and these things, in most of California, are either provided by nature or can be easily provided by man. These necessary things for the right kind of bacteria are: lime, which will keep the soil sweet; potash and phosphates, which will provide food for plants and stimulation for the bacteria; good supplies of air, vegetable matter, and moisture for food. The latter two things man can supply; the others, in California soils, nature looks after.

A fundamental thing about California soils, which really makes the greatest difference between them and those of the humid districts of the country, is their depth. In good normal soils there is often little difference in color, texture and vegetable content between the upper foot or so and ten or a dozen feet down.

This early suggested to Professor Hilgard that the bacterial life in the soil, which means practically all soil activity, would be quite similar several feet down to what it was near the surface. Investigations by Professor Hilgard and Professor Longbridge proved this, and recent investigations by Professor Lipman gave definite facts concerning it.

Depth of Bacteria.—Professor Lipman made a definite survey of eleven typical California soils, good and bad, to a depth of 12 feet, except where water-table or thick hardpan prevented. In all of the soils those bacteria whose definite work it is to make ammonia out of vegetable matter containing nitrogen were found fairly active as deep as the samples were taken. In two uncultivated desert soils from Imperial and Coachella valley, their activity was very limited. In another soil permeated with alkali they also were few in number, and where hardpan or streak of gravel occurred they also did not thrive. For all soils, however, that were quite free from alkali, that were well supplied with vegetable matter and moisture, and that were loose enough to permit air to circulate, the bacteria thrived. In several cases they were almost as numerous six and eight feet down as near the surface, and more numerous than at the surface of less fertile soils, showing how good physical and chemical conditions favored bacterial activity to a great depth; and this kind of activity also means all kinds of activity that makes good crops.

Naturally, if the water-table drives out the bacteria and drowns out the roots, the bacteria will not thrive, neither will vegetation get the use of the lower soil. Naturally also, hardpan prevents both roots and bacteria from doing much good below it. An interesting thing about alkali was that, several feet down, where the alkali was not so plentiful, the bacteria thrived better than near the surface. Bacterial investigations thus prove what has been said before—get conditions right and everything will work to the best interests of the vegetation.

The bacteria that make nitrates out of ammonia, that put the finishing touches on the nitrogen in its preparation for plants, did not go so deep as others, but in one case went down to a depth of eight feet. Still another class of bacteria, which we will soon say more of, the kind that take simple nitrogen from the air and make it into nitrates all by themselves in a single step, were found working vigorously, in several cases, down to three and four feet. These exist only with plenty of air and everything just right.

Adaptability.—Conditions that are so favorable to the growth of bacteria evidently make it easy for the bacteria that live on the roots of legumes and take in nitrogen from the air to adapt themselves to the different kinds of legumes, and we know that in California we do not have the trouble with bacteria for alfalfa and other leguminous crops that they have in the East.

This talk of inoculating soils with bacteria to get alfalfa, clover, peas, beans, etc., to grow, nearly all started in the East, where soils are shallower, wetter, and altogether different from what they are here. Those who read Eastern agricultural papers will all know how much effort is usually necessary to get a good stand of alfalfa. The land has to be limed, manured, treated to some soil or bacteria from another alfalfa field, and so on before a good stand is secured. That is because the best kind of bacteria do not feel at home and have to be nursed along. On good California soils, alfalfa and bacteria start strong at once.

The facts we first stated indicate that bacteria grow vigorously deep in the soil, feel quite at home, and are easily adaptable. Applied to conditions, it means that it is seldom necessary to take soil from one alfalfa field to another, to get the latter to grow good alfalfa. However, our native legumes naturally have bacteria on their roots closely related to those on alfalfa. Less closely related legumes, like vetch, peas, beans, may have a little trouble adapting the bacteria in the soils to them, and inoculation may sometimes be advisable. However, inoculation is so often unnecessary that if the legumes do not thrive on what is evidently fertile soil, it is more of a hint that lime, moisture, air, humus, and drainage are needed than anything else.

Azotobacter.—This class of bacteria are little known popularly. They offer some of the greatest possibilities of free nitrogen to the farmer that could be imagined. These are the ones above referred to which make the nitrogen direct from the air and make nitrates all by themselves and all in one operation. The other bacteria that we hear so much of in giving us free nitrogen have to live on the roots of plants, and have a round-about way of working.

The great nitrate deposits of Chile, whence our nitrate of soda comes, were formed we know not how. There has been lots of speculation, and the last speculation, based on recent developments in Colorado, indicates that the azotobacter are the organisms that are responsible for it.

They got an overdose of azotobacter and nitrates in spots in Colorado, which brought the matter most to light. In little spots in cultivated land patches of black started to form, which soon killed all vegetation they enclosed and made vegetation around the edges grow very vigorously. This is just what an excessive application of nitrate of soda would do.

It was found that these bacteria were thriving so in such places that they gathered up enough nitrogen from the air to first kill off the vegetation and then to kill off themselves. Too much of a good thing, you see. Some spots showed up at the rate of 5 or 6 per cent of nitrates near the center, while the average nitrogen in the form of nitrate in cultivated soils in Colorado, such as these spots occurred in, varies from about 0.0004% to 0.012%. These spots developed in all types of cultivated soils. The bacteria do, however, thrive best where there are fair supplies of plant food, especially lime as carbonate and gypsum, and where there is a trace of alkali salts present. California soils ought to be all right, but the process would have to be kept in check, which was found to be a difficult job in Colorado.

How They Work.—These bacteria did not work all by themselves. Bacteria have to have vegetable matter in the soil, and where the soils are dry and without humus, or material to make humus, there will be few bacteria. These bacteria that made trouble grew on algae, very simple plants related to some seaweeds and to the green scum that grows in still water, and those algae in turn needed moisture and plant food.

Whether we can make any use of this combination or not is another thing, but the azotobacter already in our soils evidently do good work, and what has been recently learned opens up great possibilities and demonstrates that the science of bacteriology is an important one for the farmer. California has fine soils for bacteria, fine bacteria for the soils; if we can give our soils the right conditions of air, plant food, and moisture, everything in nature will come to our aid.

GYPSUM AND AIR-SLACKED LIME.

To the Editor: I would like to know the comparative value of gypsum and air-slacked lime. Both are procurable here at \$9 per ton. I have mixed for my use equal parts of superphosphate, 18% grade, with gypsum, using 200 pounds per acre. Would you approve of this mixture?

Hughson.

A. H. G.

ANSWER BY ASSOCIATE EDITOR.

The value of gypsum in comparison with air-slacked lime will depend largely upon the use that is to be made of the two. For application to the soil, gypsum would be more of a soil stimulant usually than the air-slacked lime and have a greater effect, probably, in increasing the yield for a single year. The air-slacked lime is much richer in lime, or calcium, the basic substance of all lime compounds, than is the gypsum, and would have more permanent effect and a greater entire effect. In 100 pounds of pure gypsum there is only about 23½ pounds of calcium, equal to 32½ pounds of quicklime, while in 100 pounds of pure air-slacked lime there would be 40 pounds of calcium, equal to 56 pounds of quicklime. The gypsum would have no effect whatever in overcoming sour soil, which, however, is rare in California, and the air-slacked lime would have a very great effect. If your soil contains moderate amounts of lime, would say that gypsum would give the best results. If it is lacking at all in lime, would say to use air-slacked lime. You might try different checks with the two materials, but wait until the effect of each application had worn out before deciding which was the better. Air-slacked lime is likely to be quite pure. Gypsum varies greatly in purity, but at \$9 per ton the quality evidently is excellent. The combination of gypsum and superphosphate should be very good. The gypsum would give a stimulating effect and the superphosphate a lasting effect. Double the amount of superphosphate would make such frequent applications unnecessary. Superphosphate contains fair amounts of gypsum, and it would be well to try an experimental application of this alone.

ORGANIZING FRUIT ASSOCIATIONS.

To the Editor: Will you kindly inform us through your columns if there is going to be organized in Butte county a cured fruit association, or if already existing, whom we have to address to receive the necessary information regarding the matter. We are very much interested and wish, if possible, to become members of such an association.

READERS.

Bangor, Butte county.

There are associations at the following places: Red Bluff, Maywood and Corning, Tehama county; Modesto and Turlock, Stanislaus county; Chico, Butte county; Anderson, Shasta county; Yuba City, Sutter county; Acampo, San Joaquin county; Martinez, Contra Costa county; and others are in process of organization. Readers everywhere will recognize what points are most convenient to them, as there have been several inquiries regarding the California Cured Fruit Exchange. Prospects for marketing through the Cured Fruit Exchange can be found by addressing same, Oeschner building, Sacramento, Cal.

THE EXPOSITION DESIRES BEAUTIFUL PLANTS.

To the Editor: The directors of the Panama-Pacific International Exposition intend making a handsome display of California plants, both exotic and indigenous. They have found and secured a great variety of plant life in good condition, but there are several species of trees that the nurserymen of the State do not carry in any specimens large enough to make a creditable showing in the great courts which are about to be built on the grounds. These courts are any size from two to ten acres.

The directors are very anxious to make a fine exhibit of orange trees and other fruit trees established in tubs, and as they cannot possibly purchase them, no one having them for sale, they ask the RURAL PRESS to kindly bring before its many readers who have orange groves if it would

not be possible for several orange-growing sections of the State to make donations of a few well proportioned trees of ten feet or more in spread of branch, so as to give our visitors an idea of what has been done and is being done in our great State.

Should any of your readers donate specimen orange trees, the Exposition Company will be glad to send men to root-prune and prepare same for transporting to the Exposition grounds. These trees, to be safely transplanted, would have to be

operated on not later than the fall of 1913.

The landscape department of the Exposition Company will be very grateful for any assistance from your readers or from any of the different citrus associations, chambers of commerce, boards of trade, etc., in the orange-growing districts. Communications may be addressed to the Panama-Pacific International Exposition Co., or to the writer.

JOHN McLAREN,
Landscape Engineer.

Park Lodge, Golden Gate Park, S. F.

The Spring Spraying.

[Written for the PACIFIC RURAL PRESS.]

Most of the fruit men of California do not need to be reminded of the time for spraying and the advantages thereof, but there may be some readers who would like a few suggestions on this matter for spring use. Details for any section and for any crop can always be had from Horticultural Commissioner of every county, and no grower should hesitate to call upon his commissioner for any required information and help.

The early spring spraying is mostly done just when the trees are beginning to wake up for the year's work—just as the buds are opening. Different sprays usually are applied at this time than in the late fall and winter, when the trees are dormant, and usually weaker sprays have to be used on account of the trees being more tender.

Apple and Pear.—These trees and the crops on them are quite similar in insect pests and diseases. While the buds are opening, the scab which will seriously affect the fruit if not controlled is in a condition where it will be greatly checked by the proper spray. Bordeaux is sometimes recommended for this, but lime-sulphur for the spring spraying of practically everything is taking the place of the bordeaux and is even replacing it in the fall, so the lime-sulphur is preferable for spring spraying. The grower with only a few trees will quite surely find it better to buy commercial lime-sulphur, and directions for dilution and use will come with the different brands. For the spraying for scab, the ordinary commercial material is diluted about 8 to 1. After the blossoms are out the dilution may have to be increased to 35 to 1. This spraying can be combined with the spraying with arsenate of lead for the codling moth. The spraying for the latter is a separate problem in each different climate, and for details the county horticultural commissioner or deputy should be called upon if experience has not shown the best system of operating in an orchard. Even growers of large acreages, however, occasionally go deeper in their pocket than they might by using some materials or brands that might just as well be replaced by cheaper ones. Not all brands of arsenate of lead are of equal value, but there is enough difference in the price from different manufacturers to justify getting prices of various brands and testing them out to see how they affect the trees. There are three different materials that can be used for codling-moth control and for all leaf-eating insects: paris green, arsenate of lead, and zinc arsenite. The second is now the standard, at least where the atmosphere is inclined to be at all moist. The latter is new and worth a trial. It is said to be very effective and yet safe.

Later on, when the leaves come out on the apple, mildew often does a good deal of injury to the young shoots. The control of this is unsatisfactory. The best thing is a spray with iron sulphide as a basis. This has to be specially prepared and can hardly be made on the ranch. Sprays for aphids on apples are also rather unsatisfactory, but are all that can well be done. Tobacco is the basis for these. The destruction of insects that eat the leaves of pears and apples is accomplished from the spraying against the codling moth.

Peach and Stone Fruits.—It is only in a few places that spring spraying of peach trees can be omitted. Together with the fall spraying, the application of lime-sulphur just as the buds are opening effectively checks the peach worm, the peach blight and the curl-leaf, all of which could usually do a vast amount of damage if left unchecked. Hardly any spraying is so satisfactory as that against the pests of peaches.

The shothole fungus is the same as the peach blight, though attacking apricot and almond trees in certain sections. The bordeaux or lime-sulphur spray as the buds are opening will greatly aid in the control of this. With the fall spraying it will be almost a perfect control, although the spring spraying is the most effective of the two.

The other stone fruits can go without spring spraying, although a winter spraying to take off the moss and clean up the bark is a big advantage.

Thrips.—The thrips in the coast counties and lower Sacramento river districts will call for control on both pears and prunes, especially the former. A United States Department of Agriculture bulletin and a bulletin by Earl Morris, County Commissioner of Santa Clara, gotten out by the Agricultural Experiment Station at Berkeley, both deal with this problem. The tobacco emulsion of the U. S. Department of Agriculture is considered the standard spray.

Wherever the thrips are found, spraying of pears is quite sure to be necessary. The lime spray recommended by Mr. Morris in some cases has been quite satisfactory for this. On prunes the tobacco emulsion is the right spray, if any is required. How the pest will be this year cannot be told in advance, as some years it does comparatively little damage in lots of prune orchards. It is well to be ready.

The necessity for spraying will depend upon the number in a blossom. As the blossoms are barely opening the thrips should be shaken out of a few on white paper. If only two or three are in a blossom, it is probable that spraying may be omitted. If they are more numerous, it is quite certain that spraying will be required. This matter in former volumes of the Press has been thoroughly discussed.

Finally, every fruit-grower who does not know his business thoroughly ought to have a copy of a bulletin of the Agricultural Experiment Station, Berkeley, on 'California Plant Diseases,' which will tell of the diseases and their control of all California fruits and field crops. Bulletins on the control of insect pests of many fruit crops are issued and can also be secured on application.

THE BALLOTA OAK.

To the Editor: In an article entitled "The Agriculture of the Future" in Harper's monthly for January, mention is made of an edible acorn raised in Spain (of the Ballota oak) of which thousands of acres are raised. This is new to me. What is there in this edible acorn story, and do the nurserymen of California handle the trees? Walnut bread is pretty popular, but just put me on the track of some scions of that edible acorn and I won't bother with walnut trees any more.

H. OVERACKER, Jr.

St. Helena.

COMMENTS BY DR. JEPSON.

The oak referred to is the variety Ballota of the botanical species *Quercus Ilex*, which inhabits the Mediterranean basin and extends east to the Himalayas. The variety Ballota grows in southern France, Spain, and Algeria, where its acorns are an important article of food for the lower classes, who prefer them to chestnuts and eat them roasted or boiled. The chestnuts and oaks belong to the same natural order (Cupuliferae or Oak Family), and the chestnut flavor may be detected in the acorns of some of our native Californian oaks such as the Tan Oak and Deer Oak, especially when leached and roasted.

The Ballota oak has never been grown in California so far as I am aware. It would, of course, be interesting to try it. Anyone who has the leisure and means to make experiments could apply to some European seed-house for acorns, such as Vilmorin Seed House in Paris, care Philippe de Vilmorin, 23 Quai d'Orsay, Paris, France, or James Veitch & Sons, Royal Exotic Nursery, King's Road, Chelsea, London, S. W., England.

W. L. JEPSON.

Berkeley, February 1.

BORERS IN HIGH PLACES.

To the Editor: Our apple trees up here in the mountains and foothills are badly affected by a pest known as the "tree borer." It seems to develop from an egg laid by a fly on the bark, and develops into an insect of good large size. It bores through the bark and wood of the tree, eventually sapping the life out of it. It is a common pest here in the mountains, and we would be pleased to learn if there is a remedy or means of getting rid of it.

A. J.

Squaw Valley.

It is not possible to tell from your description what particular insect is attacking your apple trees in the mountains and foothills, because there are several grubs which are properly termed tree-borers, and they all make their way into the substance of the tree when they hatch from an egg placed upon the bark by the parent insect, which is usually a beetle rather than a fly. The most common one is about three-quarters of an inch in length with a large flat head, much broader than the balance of the body. This insect attacks trees after the bark has become sunburned, and the way to prevent the insects is to keep the bark carefully whitewashed wherever the sun can strike it on the trunk and larger limbs. We are not sure, however, that you have this insect, because in the mountains are also borers of much larger size, as large as a lead pencil and with roundish heads, etc. The best remedy, however, for all such insects is keeping the bark covered with whitewash, renewing it after the rains early in the spring before the sun has a chance to injure the bark, and maintaining it through the summer. There is no way of poisoning these insects because they do not eat until they have made their way into the interior of the tree where the poison could not be placed.

CHANCE FOR CITRUS FRUITS IN GERMANY.

If the importers of citrus fruits are strong enough to uncover the American product, as they are now trying to do at Washington, we may have to do more to get the North European trade via Panama in competition with the Mediterranean fruit, paying presumably the same import duties and displacing them because of quality. It seems ridiculous, because Italy should supply Europe and California should supply America. If, however, our growers are placed at a disadvantage at home, they must seek a fairer basis for competition abroad—selling to the rich and ignoring those of moderate means.

Vice Consul General De Witt C. Poole, Jr., at Berlin, writes to the State Department: "I am informed that a demand for first-class American oranges and grapefruit exists in Germany, which is now purchasing \$5,000,000 worth annually from other countries. In order to meet local demands, the fruit should be wrapped in tissue paper and packed in standard boxes. Bright colors are more popular. The size of the fruit should be such that the number of fruit in each standard box should run, for oranges, 150, 200, and 226, and for grapefruit 46, 64, and 96. During the winter months it is essential that the fruit be packed in such manner as to prevent freezing.

"Semi-monthly shipments could begin in late fall and continue during the winter and early spring. Shipments of grapefruit may be kept up the year round.

"Purchases of American fruit are now made mainly in Hamburg through agents of American exporters who sell for American packers or shippers on a commission basis. Exports of oranges from the United States to Germany were valued at only \$1703 in 1911 and \$1848 in 1912."

The citrus opportunity in Germany certainly needs looking into pending the canal opening.

Breeding Pure Bred Jerseys in Stanislaus.

[Written for the PACIFIC RURAL PRESS by
J. C. LOOMIS.]

As can readily be seen by statistics issued, Stanislaus county is now the leading county of the State in butter fat production, but another feature of the county's dairy production not shown in the report are the numerous breeders of registered dairy cattle located throughout the section and while most of them are still young in the business, we believe they also would number larger than in any other county.

The old question, whether good stock pays or not, has been thoroughly gone over time and again and seems to be practically answered in this county, for as land values increase a big improvement in the stock has become necessary and one finds on most every ranch a pure bred bull, sometimes two or three registered cows and as before mentioned, a good many have branched out into the breeding game with whole herds of registered stock.

One far-sighted dairyman among those who saw the need for better stock in the future, was Gerald Hillier of Modesto.

Mr. Hillier moved to the Modesto district three years ago and since then has made such remarkable strides in the pure bred business that it might be helpful and encouraging to others already in the business or to those contemplating such a step to know of his experience.

The ranch comprises 60 acres, located $3\frac{1}{2}$ miles from Modesto, all of which is planted to alfalfa with the exception of 9 acres planted to corn and oats, as referred to later, also the ground used for buildings, corrals, etc.

Better stock.—As Mr. Hillier considered the Jersey the most economical cow for his conditions on high priced land, he bought, after careful selection, 40 head of grade stock such as were attainable in this district at that time.

This herd was kept for a year and a half and produced about the average for grade stock, but after a careful and systematic account had been kept of their earning powers it was decided to buy better stock, so the grades were sold at a sacrifice and a careful search was made for pure bred stock in this State with the result that 20 head were secured.

With this many, Mr. Hillier convinced himself, after a year's milking, that his weakest spot was in numbers, so last August he started on a tour of the eastern breeding establishments with the intention of bringing back with him the best representative herd of Jerseys ever brought into California, and no expense was spared to meet this end.

After traveling through Illinois, Tennessee, Virginia, and other States, where Jerseys have become renowned, he secured 32 head of cows and a two-year-old bull of the Bleak House lineage.

This bull's name is King Polo of Bleak House. His first 7 dams all, have made high butter records. His first 3 dams and his sire's dam have all made great year records and are all world record cows. In his extended pedigree, 50 dams have seven-day butter records that average 21 pounds, 9 ounces. With the exception of his full brother he is believed to be the best bred Jersey bull in the world.

Eight of the cows purchased are Register of Merit cows with records varying from 529 pounds 9 ounces, to 414 pounds with their first calves, and the balance of the herd will be put on test as soon as possible.

It might be well to state here that this was one of the largest shipments of Jerseys ever brought into this State and at present, with the 20 head formally purchased, together with the calves born since, there are 86 head, making the largest pure bred herd of Jerseys in California.

Pure Breds vs. Grades.—At this point one's mind naturally wanders back to the old question, "Does it Pay," and here is where farm book-keeping shows results, for Mr. Hillier has kept an accurate account of everything and showed the writer his creamery statements for the grade

stock in comparison with the pure bred stock, showing a surprising difference, as illustrated below.

For the first 15 days in January, 1910, while milking 24 head of grades, he sold 137 pounds of butter fat, while for the first 15 days of January, this year, he sold 398 pounds from 30 head. Naturally, in both instances some of those being milked were drying up or the total would have been greater.

In addition to the enormous gains in butter fat there are as before stated, 36 head of young stock for which Mr. Hillier expects to realize from \$3,600 to \$4,000 for this spring when he will hold his first annual auction, instead of \$150 or \$200 which he would have received from the sale of grade calves.

Feeding.—While no doubt the most credit must be given to the superiority of stock in the



King Polo of Bleak House, Reg. No. 101114

great difference of butter fat production, it should be stated that better feeding methods have been practised for while the grades were fed alfalfa alone, the pure bred have been favored with a balanced ration and in this matter, like all others, Mr. Hillier has kept an accurate account of the results from different rations so that he now has satisfied himself which is the more profitable. Believing that a silo was of prime importance, as has been so persistently advocated in this journal, one was built with a capacity of 90 tons, at a cost of \$225, and 9 acres of corn was planted as above mentioned, which ground is alternated with oats. It should be said here that Mr. Hillier considers the silo has paid for itself already in the year since its erection.

The ration finally adopted consists of 20 pounds corn ensilage, 25 pounds alfalfa hay and 10 pounds mill feed composed of cocoanut oil cake meal and sorghum molasses to each cow, this giving about the right amount of protein, fat and other ingredients which help to make the greatest amount of milk.

Naturally, no set amount can be given for each cow, as their appetites are as different as humans and have to be fed accordingly. It can readily be seen from the above comparison Mr. Hillier's experience has been that pure bred stock does pay, for while this breeding establishment has been in the development stage, the butter fat alone has made good interest on the capital invested. Very few young bulls have been offered for sale, Mr. Hillier believing that for his best interests as well as for his customers, a young animal should be brought to a stage where his bad points, if he has any, are brought out, thereby insuring the buyer that the animal he selects will mature into the same one he buys instead of selling calves at three or four weeks

old when it is only a guess as to what he will eventually be. Like most other breeders, Mr. Hillier believes that many a good calf, no matter how high the breeding can easily be spoiled in its infancy by improper handling, and for this reason, keeps a close watch on the calf lots at all times as it is his aim to only turn out animals that are first-class in every respect.

Equipment.—The outlay other than the first cost of the cows has not been any more on this ranch than it would have been had the grades been kept, and in fact the same equipment is being used now that was first installed three years ago.

A good barn with cement floors and drains, with a capacity of 32 cows is used, the drains leading to a cistern some 40 or 50 feet from the barn, from where the liquid manure is taken in a tank wagon and sprayed on to the alfalfa fields for fertilization.

The separator house has a cement drained floor and a steam separator is used, but later on these buildings will all be remodeled along still more modern lines in keeping with the class of stock kept.

Believing in comfortable quarters for his family, a modern seven-room bungalow was built, equipped with modern plumbing and lighting systems which help to make life on this ranch a pleasure rather than a drudgery, as is so often the case on dairy ranches. Mr. Hillier is planning on showing some of his stock at the 1915 Fair, and if nothing happens should be one of the factors showing the world that California is not only the best place to live, but raises some of the best pure bred Jerseys as well. He is a member of the American Cattle Breeders Association and a firm believer that there should be no need of sending East for pure bred stock when by breeding up, dairymen here can have as good, if not better stock than they can get elsewhere and at considerable less expense.

LIVESTOCK NOTES AND COMMENTS.

[By Our Associate Editor.]

The Better Farming Association of North Dakota is getting after the proposition of having the rising generation trained to successful agriculture and will conduct a pork production contest during 1913 for boys and girls under 18 years of age. The contest will be decided and prizes awarded on the basis of the largest production of pork from a sow at the lowest food cost per pound of pork produced. The weight of the litter of the sow at the close of the contest will be taken as the basis of award. The contest closes November 20, on which date the pigs will be weighed and awards made. All feeds used by all contestants will be charged at the same price. After once entered, the feeding and care of the sow must be under the direction or by the contestant. Twenty cash prizes from \$100 down will be awarded and the profit from the litter and the experience gained will be worth more to the contestants than any prize. If a contest is of value in a State like North Dakota, where they have the corn to feed hogs and can raise alfalfa and other things to make an economical production of pork, how much more valuable would it be in California, where ordinary hog practice does not make for the best kind of pork and where wise changes in feed would almost always mean larger litters, heavier pigs and better pork?

Why Not California?—This calls up another question, Corn. This morning a booklet for the States of the Southeast arrived, published by the Southern Railway, designed to encourage the growing of corn. The South has been waking up to the value of corn and the yield in the South in 1912 was 200,000,000 bushels greater than in 1909. They talk of soil deterioration, but the average yield in a decade has increased 5.3 bushels, against a decrease or very small increase in the corn belt States of the Middle West. It has been boy's corn clubs that has been responsible for this in large part. The boys in Mississippi averaged 66 bushels to the acre and large numbers in all States made better than 100 bushels. Neither was California considered a corn State, but if the South can threaten the lead of the Middle West, cannot California do better? Corn is just what we need for soil and for stock and before California live-

stock, dairy cattle, beef cattle, sheep or hogs, do as well as they ought to, corn will have to be produced.

* * *

Old Age Record.—California is holding the old age records for milk production, in spite of Eastern claims and competition. The Eastern livestock papers are telling of a record of 716 pounds of fat from 19,600.4 pounds of milk from Maid Henry, a Holstein cow that will be 13 years old on March 2, 1913. This is a wonderfully fine record and the owners, the Kansas State Agricultural College can well be proud. In the account of this record, however, Malcom H. Gardner, superintendent of advanced registry of the Holstein Friesian Association, is quoted as saying that Maid Henry is in a class by herself, as he knows of no other Holstein cow of like age who has made a similar record. Now, when looking for big things no one ought to neglect California. On the Advanced Registry of the Holstein Friesian Association a California cow, Aralia De Kol, owned by A. W. Morris & Sons, is credited with 910.18 pounds of fat, nearly 200 pounds more than this, and with 28,065.9 pounds of milk, a difference of more than most cows give during a year. That means more than 1,100 pounds of butter and it was a world's milk production for a while. And to boot, Aralia De Kol was in her twelfth year when she started her year's work and in her thirteenth year when she quit. The Kansas cow may possibly have been a couple of months older when making her record, but that little margin don't compare with a margin of 8,465 pounds of milk and 194 pounds of fat. Then after her year was several months passed she placed well in the butter competition at the State Fair and is in first-class condition. It is all right to talk of Kansas cows, but it is better to talk of those of California.

* * *

Dairy Bureau Report.—The biennial report of the State Dairy Bureau is out and ready for distribution, and any dairyman who is thinking of building a barn would do well to write for a copy to F. W. Andreasen, secretary, San Francisco. The statistics contained therein have already appeared in these columns. A striking thing shown in the report is the injury that is done to the dairy industry by adulteration of market milk by unscrupulous persons, both producers and distributors. The trouble is greatest in small towns owing to less inspection than in the cities, and naturally people use less milk in consequence. This injures both the public and the dairyman at large. The water added by 19 dairymen admitting adulteration was sold for \$19,000 per year. How the dairymen at large look at such conditions is shown by their support of the Bureau and their activities in getting a better and stronger dairy law and more and better inspection. Aside entirely from the question of common honesty this is bad business. Success only comes from supplying customers with good goods and the better the milk, the more sold and the better the price.

* * *

Good Sheep Work.—Upon February 1 the Federal quarantine on sheep scab was lifted by order of the Secretary of Agriculture on the counties in California extending from Humboldt and Dell Norte counties on the northwest, over to the Nevada line and along the Sierras to San Bernardino. The larger part of Nevada was removed from quarantine by the same order. It is but a few years since systematic work against the scab was started by the Bureau of Animal Industry in co-operation with the State Veterinarian and the lifting of the quarantine this quick is a tribute to the efficiency of both State and Federal officers, especially since the scab is so difficult to detect and no quarantine would be lifted if the scab were not surely eradicated. Through the rest of the State the trouble is practically overcome and the scab and Texas fever will before long both have disappeared.

In the table of food values for the different feed stuffs in the PRESS of February 8, the digestible content of alfalfa hay was through a change in a figure stated to be 43 pounds per 100 instead of 53 pounds. An examination of the figures preceding would show that the higher value would be the one to use. The value in dollars and cents for this and other foods was correct according to the basis of calculation.

Breeding the Horns Off Cattle.

Some interesting facts about heredity that have been brought out in recent years since the publishing of Mendel's discoveries should be known by every stockman or farmer who grows living things, animal or vegetable. The way that horns can be bred off cattle quickly and easily by the application of Mendel's Laws is shown in an address upon the "Inheritance of the Poll Character in Cattle," by W. J. Spillman, Agriculturist in Charge, Office of Farm Management, United States Department of Agriculture, delivered at the annual meeting of the American Polled Jersey Cattle Company, Springfield, Ohio. The paper is too long and technical to be given in its entirety here, but copies can be secured on application to the secretary of the company, R. D. 4, Springfield, Ohio.

Every dairyman wants his cows to be without horns, unless perhaps he may have some special reason for wanting the horns. The growth of the horns may often be prevented by the use of caustic soda when the calf is very young, or they may be cut off later on. A decided improvement is to have the calves born with the polled character, so that they never will develop horns. By the proper use of the laws of heredity this can be accomplished.

There are already standard breeds of polled cattle, like the Aberdeen Angus and the Red Pol. Likewise in the horned breeds occasionally an animal will grow up with the polled character and with as much of a power to leave that polled character to his offspring as if none of his ancestors ever had horns. These sports have made it possible to develop the polled character in horned breeds and Polled Durhams, Herefords and Jerseys are being bred in numbers now.

Coming back to the address referred to, which we will have to change slightly to avoid technical terms developed from a lot of preliminary explanation not especially related to cattle, the way a few polled animals can be used to take the horns off a breed can be seen.

"All cattle may be divided into three groups with respect to horns, namely: 1. Pure polled animals, who have practically no tendency to produce horned progeny. 2. Pure horned. 3. Cross breeds, in whom is inherited a tendency both toward horns and toward the polled nature.

"The first class are, of course, polls. The second have fully developed horns. But what of the third class—the cross breeds? All of you who have had much experience in crossing polled and horned cattle know that most cross breeds are polled. But sometimes they show horns. We are now prepared to understand why this is.

"In the early stages of the development of a polled breed a good many of the animals that look like pure polls are in reality cross breeds. Half of their eggs or sperm carries the horn character. Hence, when they are mated, especially with horned cattle, a part of the calves have horns.

"When a pure poll (not a poll that is really cross bred with reference to horns) is mated with a pure horned animal, the offspring never, or almost never, has perfect horns. It will be either entirely polled or will have scurs, that is horns without a bony core. These scurs may be mere buttons that can be found only by the most careful examination, or they may be as large as fully developed horns, but they are always loose on the head. They are not grown firmly to the skull.

"Thus the cross bred shows more of the character of the polled parent than of the horned parent. For this reason we say that the poll character is dominant and the horned character recessive. When the two characters meet in the same individual the poll character predominates over the horn character.

"Nature of Progeny.—Let us now see what happens when each of the three classes of cattle are mated. When one of the parents is a pure poll, none of the progeny will have perfect horns, no matter what the other parent may be. It makes no difference which is the polled parent. If both are pure polls the calves will all be pure polls. If one parent is pure polled and the other pure horned, all the progeny will be cross breeds,

either polled or with scurs. If one parent is pure polled and the other cross bred, half of the calves will be pure polls and half cross breeds. If one parent is pure horned and the other cross bred, half the calves will be cross breeds and half pure horned.

"Where both parents are cross breeds we get the surprising and interesting result that one fourth of the calves are pure polls, one half cross breeds and one fourth pure horned. Herein lies the hope of the breeder who is trying to get rid of the horns on a horned herd. He can, by using a male of a polled breed, get any number of cross breeds. Then by mating these cross breeds, one fourth of the progeny will be as pure polls as if they never had a horned ancestor. When once a pure polled animal is secured, he will never get a horned calf, no matter what cows he is bred to. But a cross-bred is of great value. By mating him with horned cows, half of progeny will be cross breeds. These cross breeds can then be used in producing pure polls (as explained above in this paragraph).

"It is therefore possible for the breeders of Polled Jerseys to introduce into their herds the best blood of the Jersey breed. (The same can be said of Polled Durhams and Herefords). If the blood thus introduced carries the horn character, the polled calves resulting will be cross breeds, but from them can be obtained pure polls carrying the best blood of the breed.

"A very important practical point to the breeder of a new polled breed is how to tell a pure poll from a cross bred poll. This is fairly easy in the case of males, but less so in the case of females. In the first place if the animal has scurs, even minute ones, it is cross bred. If it has no sign of scurs, it is probably pure polled, but this point has not received sufficient investigation to render it certain whether cross breeds always have scurs. I think it is probable that they do. If so, then we have an infallible means of deciding whether a polled animal is pure or cross bred with reference to the poll character.

"In the absence of definite knowledge on this point there is still a way to settle the question whether a given animal is pure polled or cross bred polled, especially in the case of the males. It should be remembered that a pure poll never gets a horned calf, though his calves may have scurs if the cows had either scurs or horns.

"On the other hand if the male is a cross bred poll, whether he has scurs or not, half his sperm will carry the horn character. Hence, if he be mated to horned cows, about half his calves will be fully horned. On the average of a large number of cases it will be almost exactly half.

"A practical rule, therefore, for determining whether a young polled bull is a pure or a cross bred poll is to mate him, say, to a dozen horned cows. Even if the breeder does not have the horned cows, his neighbors will usually have them and will gladly lend them to this experiment. If a dozen calves thus produced are all polled, or have only scurs, then the chances are over 4,000 to 1 that he will never get a calf having more than scurs. Such a tested bull, to a breeder of a new polled breed, ought to be worth at least twice as much as one not tested."

The above facts are but a few that are developed by an understanding of Mendel's Laws regarding heredity. These facts mean that with two or three polled bulls in any horned breed the horns can be bred off a very large number of cattle in very few generations with little, if any, inbreeding. All the best blood of the horned cattle can be retained and if the breeder of polled cattle wishes to introduce the blood of the best horned cattle he can do so and by rejecting a few heifers of the second generation have the whole herd as polled as if no ancestor had ever worn a horn.

The progeny of a polled bull all grow either without horns, or with horns that can easily be removed. Even half of the progeny of a bull whose dam was horned and sire polled will get calves, half of whom will have imperfect horns and be as good for breeding off horns as their sire. Further combinations of circumstances will show what great effect one sire may have in removing the horns from his descendants.

Shall Barley be Six-Rowed or Two-Rowed?

[Our barley growing readers may remember the discussions we have previously printed upon the question as to whether the six-rowed or the two-rowed barleys were relatively superior for crop and brewing purposes. California growers have grown both and have a general preference for the six-rowed because of the greater weight which a variety with three times as many lines of grain in the head, should and generally did produce. All the brewing experts who have not rid themselves of European prejudices have exposed themselves by scolding farmers for growing six-rowed kinds and have in previous years even come to California for that purpose. In recent actual tests the six-rowed have triumphed in brewing quality and thus the prevailing conviction of California growers has been approved. Discussion, however, continues, and Robert Wahl of Chicago locks horns with a brewery expert in a way which our barley growing readers will find interesting.—EDITOR.]

The December issue of the American Brewers' Review contains a criticism by Mr. Fritz Bock, Superintendent of the Pabst Brewing Company, of the efforts of the Wisconsin Agricultural Experiment Station's work in the cultivation of barleys of the six-rowed types, as presented in an address by Professor C. P. Norgord at the meeting of the Upper Mississippi Valley Brewmasters' Association at Madison, Wis., October 19, 1912, of which we will give a short review before commenting on Mr. Bock's criticism:

Professor Norgord, in his address, gave a history of the efforts of the Department of Agronomy of the Wisconsin Experiment Station to improve the quality of barley through rational methods of cultivation on agronomic and scientific principles, resulting in the acceptance of the Manchuria and Oderbrucker types of barley, for the purposes of cultivation as the most promising stock, based not only upon these field experiments, but also upon the malting and brewing tests made by the Wahl-Heinus Institute of Fermentology, with which the experiment station was collaborating. Finally the Oderbrucker type was selected as that offering greater advantages as to acreage, yield and quality of crop, and by the year 1908 approximately 85% of all the barley grown in the State was of this type. The average acreage yield on the farms of the members of the Experiment Association was given as 35.7 bushels, a yield 4.9 bushels higher than obtained with any other varieties. The superiority of the Oderbrucker type having been established, this barley was chosen by selecting for cultivation those plants which had the longest heads, the largest kernels and the largest number of kernels per head, and the largest stooling power, together with certain botanical characteristics, purity of strain, and high acreage yield and quality of product.

It required years of painstaking study and work to cultivate and disseminate throughout the State these pedigreed types. In comparison with the six-rowed varieties a large number of two-rowed types, especially from Germany and Sweden, were experimented with, among these Chevalier, Hanna, Svanhals, Primus, Princess, but the yields never exceeded 40 bushels per acre, averaging only 30 to 35, while some six-rowed varieties averaged 40 to 45. They were from one to two weeks later in maturity, meaning longer to exposure to bad weather, and to the ravages of rust and other diseases; besides, they all proved weak in the straw and would lodge. And Professor Nor-

gord now asks that this pedigree barley available on the market should be recognized by the malster and brewer more than it has been in the past, and should be made to stand in a special class in the trade, that higher prices should be paid for purity and pedigree, and that unless this recognition is made in our market we will most assuredly not be able to get the farmers to keep this pedigree pure and unmixed; and this will mean the loss of a large part of the work done in the improvement of barleys in the State of Wisconsin. He closed with the remark that with cooperation between the farmers, the buyers, and the malsters we can expect to see a combination of purity and quality in the production, marketing and use of barleys such as never has been seen before.

THE BREWER OBJECTS.—This address of Professor Norgord gives rise to Mr. Bock's criticism, and while he considers the work done by the Wisconsin Experiment Station valuable, he claims it is only "about at the beginning of the proper work. Two-rowed barley is the most valuable for the brewer, and if the Experiment Station will put as much work into developing and improving two-rowed strains, I am sure that in the future the farmer as well as the brewer will be very much benefited by this work."

Mr. Bock's claims for the superiority of the two-rowed barleys rests upon the experience that the Pabst Brewing Company has had in raising the two-rowed variety Svanhals in the last six years, wherein they found that all the objections to two-rowed barleys named in Professor Norgord's paper as detrimental, have no bearing on this strain. Mr. Bock states:

"The straw of this barley is strong, and the barley does not lodge easily, while the yield was found to be at least as high as that of the best pedigree six-rowed barley."

If it is possible to raise a two-rowed barley with so many valuable characteristics, resulting, if properly malted and brewed, in a high grade bottle beer, there certainly will be no objection from an agronomic or technical point of view, excepting the danger of mixture of types used for seeding purposes, which danger probably can be overcome, as the new generation of farmers is becoming acquainted with the scientific methods which are disseminated so ably by the agricultural stations.

CRITICISM APART FROM FACTS.—The only criticism I have to offer on Mr. Bock's comment is that it is untimely and without sufficient data to support the claims of superiority of this barley. From all the experience that Professor Moore related he had with the various types of foreign barleys introduced by the United States Agricultural Department, including Svanhals, the barley lodged badly and therefore could not be harvested properly without great inconvenience and at heavy cost, and the acreage yield obtained was not in accord with Mr. Bock's experience.

Then, Mr. Bock claims that the superiority of the two-rowed varieties over the six-rowed, like Manchuria and Oderbrucker, lies in the relatively large quantity of starch and low percentage of albumen, and that while albumen is necessary of foam-stability, palate-fulness and enzymatic power, 10% of albumen is sufficient to meet all requirements.

Admitting this, another important question is whether the climate and soil of the middle western barley growing section are suitable for two-rowed barley, whether the ideal two-rowed barley with

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only 10% of albumen can be raised successfully in this section, comprising Wisconsin, Minnesota, Iowa, South and North Dakota. We have other barley-growing sections in the United States, like Montana, Idaho, California, where two-rowed barleys have been cultivated for years, with quality equal to the best cultivated in Europe. At the Exposition in Chicago in 1911 it was a two-rowed barley of the Svanhals type grown in Idaho that took first prize of all two-rowed barleys exhibited, and there were 28 of the two-rowed class, of which 7 specimens came from Germany.

TWO-ROWED BARLEYS INFERIOR.—This Exposition accorded a splendid opportunity to compare the barleys of the different sections of the country with each other and with the best that Germany could offer, and what was the result? All of the two-rowed barleys exhibited, grown in the middle west, were disqualified, excepting one specimen (which barely received 83 out of 100 points). And for what? For excessive albumen content, "excessive" being considered over 13.5%. The albumen ranged from 13.5% to 19.6%,

whereas the albumen content of the German barleys ranged from 9.1% to 10%. All of these disqualified American specimens were grown east of the Rocky Mountains, whereas the western two-rowed barleys had an albumen content even below that of the German barleys. Here are some figures:

Chevalier, Wright, Minn..14.5% albumen
Goldthorpe, Milwaukee, Wis.....

.....16.2% albumen
Goldthorpe, Dickinson, Io..17.6% albumen
Two-rowed, New York State.....

.....15.3% albumen
Svanhals, Waukesha, Wis..13.6% albumen
Svanhals, Waukesha, Wis..16.8% albumen
Svanhals, Waukesha, Wis..19.6% albumen
Svanhals, Idaho.....11.1% albumen
Chevalier, California.....9.0% albumen
Hanna, California.....8.3% albumen
Goldthorpe, Montana.....13.0% albumen
Goldthorpe, Silesia, Germany.....

.....9.1% albumen
Hanna, Bavaria.....9.6% albumen
Hanna, Bavaria.....10.7% albumen

These figures are almost stunning in the force of condemnation of the two-rowed barleys grown in the Middle Western States. Mr. Bock does not tell us what the the Svanhals from which he made his high grade bottle beer, analyzed as to albumen content, but if it is anything like those Svanhals placed on exhibition at Chicago last year, then consistency would lead us to conclude that a high albumen content is preferable to a low albumen content, even in the case of two-rowed barleys.

On the other hand, the low-albumen two-rowed barleys of the Western States have never enjoyed to any considerable extent the confidence of the malster or the brewer, which seems in accord with the position which I have always taken, that barleys with low albumen content develop relatively low diastatic and peptic power, and are therefore not as suitable for the production of bottle beers.

Of course, with the improvement of equipment and processes, and our better knowledge of the subject of albuminoids, we are better able to direct the brewing processes in such manner as to obtain a beer that is practically perfect, and this may be accomplished whether we use Manchuria barley malt, Oderbrucker barley malt, two-rowed barley malt, California Bay Brewing or White Club barley malt. But my contention is still that we can achieve the desired results with a less element of uncertainty and a better promise of success from the beginning with high grade barleys like those of the Oderbrucker and Manchuria type on exhibition in Chicago in 1911, a number of which ranged above 95 total points awarded, as against 71 to 86 points awarded Svanhals, none of these two-rowed barleys being considered of sufficient quality to merit a prize. Possibly the Svanhals barley has improved in this respect this year, and will continue to improve from year to year, but we are certainly not justified in drawing the sweeping conclusions that Mr. Bock does when he claims that after so many years of work and great improvements in the Wisconsin barleys the Experiment Station is just about at the beginning of the proper work, and that only if it puts in the same amount of work for two-rowed barley will the farmer and brewer be benefited by the Station.

TWO-ROWED REJECTED IN WISCONSIN.—I have a communication from Prof. Moore in regard to his experience with this year's Svanhals barley, in which he says:

"I wish to state that we shall never urge the farmers of Wisconsin to grow the two-rowed barleys. We have tried them out and under usual conditions we cannot get more than one-half the yield

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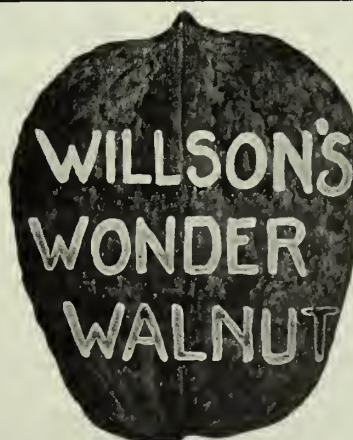
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per acre that we can from the strong growing six rowed barleys. The Svanhals this year gave a good yield, within 8 or 10 bushels of as much as the pedigree barley. However, we gave this Svanhals barley what I consider the best place in our field, and although it had fallen down on the ground badly, we harvested it, by merely cutting one way and selecting little patches in the plot that we could so harvest in this manner so as to get all barley in the field. Of course, this is not practical for the average farmer, as he cannot cut his fields in this manner, and under these conditions there would have been a loss of about one-half. If the brewers should decide to use the two-rowed barley it would be up to the people of Wisconsin to grow barley for feeding purposes, as it would never pay them to attempt to grow two-rowed barley and sacrifice half of the crop, even though they got a few cents more per bushel than they could for feeding purposes."

THE RECENT TESTS.—As to Mr. Bock's assertion that the malting of the barleys for the tests of the Wahl-Heinus Institute on which the conclusions were drawn as to the superiority of the six-rowed over the two-rowed, was improperly done, neither he nor I am in a position to verify this, as the malt is no longer available, the respective tests having been made in 1904. But we can assure him that it was of a quality considered of the highest grade, was malted in one of the eight-day compartment houses in Milwaukee, and in every respect showed all of the characteristics of a high grade two-rowed barley malt with an albumen content of 9.23%, the six-rowed Minnesota barley malt with which it was compared having an albumen content slightly over 15%. This is what was said of the malts at the time:

"The malt from this Montana barley was characterized by experts as one of the finest products of the malting art that they ever saw, and indeed the pale color, plump berry, and white mellow endosperm of this malt quite throw its unsightly competitor from Minnesota in the shade.

"The Montana malt saccharified in ten minutes, according to the usual laboratory method, the Minnesota malt in five minutes."

This shows that this Montana barley malt was of higher diastatic strength than European two-rowed malts, which require ten to twenty minutes, and this in itself is evidence that the malt received proper attention in its making. I beg to quote again:

"This Montana malt also appears superior to those derived from the average two-rowed barleys from the fact that the wort ran perfectly brilliant, whereas it usually shows more or less pronounced haze."

The beers from these two brewings resulted in favor of the Minnesota malt, especially in the chilling tests, and the conclusion was reached that the deficiency in albumen of the Montana two-rowed barley malt was responsible for the inferiority in that particular, as compared with the Minnesota Manchuria product, and this is all that was intended to be brought out at that time, in refutation of the German position championed by Mr. Haase, who asserted that barley is the more valuable the lower its albumen content, and that in judging the same in exhibitions it should be penalized for every fraction of per cent of albumen above 10.

If Mr. Bock's Svanhals barley with which he made his particular brew contained 10% or less of albumen we shall look forward with greater expectation to the future of this barley in this section of the country than we have a right to at present from the available meager data brought out thus far in support of

the Svanhals or any other two-rowed barley variety, in the Eastern barley growing section, with albumen content, with but one exception, ranging in every exhibition specimen from 13.5% to 19.5%.

The danger of Mr. Bock's agitation lies in the discouragement without sufficient cause of such valuable work as Professor Moore, of the Agricultural Experiment Station of Wisconsin, and his able staff, have accomplished in cooperation with the most efficiently trained corps of farmers in the United States.

ROBERT WAHL.

Chicago, Ill.

[It should of course be added that superior brewing quality inheres in the barley grown in California, whether it be six-rowed or two-rowed, both of which we grow in this State, but the bulk of our shipments to distant brewing centers is of the six-rowed varieties.—EDITOR.]

REAL OVERPRODUCTION IMPOSSIBLE.

(Continued From Page 193.)

average size during his yearly dinners. With 8 prunes at a service—and lots of hotels think that is as many as they can afford—the dinner can get the taste of prunes but 16 times a year, once in three weeks. If he eats more at a time, he doesn't get them so often. Those humorists ought to use a little arithmetic before saying that we were fed too many prunes. Only an absolute unfamiliarity with the merits of this delicious fruit would cause a person to make fun of it, anyway.

Then look at peaches. Say they dried down quite badly, then when they were soaked in water they would take a great deal up in getting to original size. If they had dried five to one, and went back one to five, the average man with his 6/10 pound of dried peaches would have enough to correspond to only three pounds of fresh peaches. That would have to do for the whole 365 days. A person working in a peach orchard would do better than that and be hungry when he quit work at night. Apricots, though they dry down more than peaches, are still less plentiful, and when it comes to nuts, figs, etc., a person can eat only a couple of nuts and for the rest of the year live in the memory of the experience.

In view of these facts, can there be such a thing as an overproduction of drying varieties of fruit? Good dried fruit of any kind has sufficient merit to make its use desirable in a family continually. The price to the producer and the necessary expenses of handling are such that the cost to the consumer should be too little to be seriously considered. With no other State able to produce dried fruits in great quantity, every acre of good fruit land in California might thus be utilized and a market found for the product. The reason that prices often are down to bedrock can only be that present marketing conditions are such as to curtail demand, to prevent the merits of the fruit from being known, and to put the consumer's price so high that he will be a consumer no longer.

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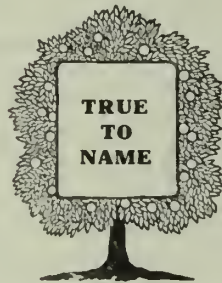
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The average of prices received by producers of the United States for staple crops increased .5 per cent from December 1st to January 1st, which compares with an increase of .6 per cent in the same period a year ago and an average increase of 1.5 per cent during December of the past five years. On January 1st prices of staple crops averaged about 17.2 per cent lower than on like date of 1912, 6.5 per cent lower than in 1911, 17.3 per cent lower than 1910, 5.9 per cent lower than 1909 and 7.7 per cent lower than in 1908 on like date. The average prices received by producers of the United States for articles named, on dates indicated, according to reports made by correspondents of the Bureau of Statistics of the United States Department of Agriculture, were as follows:

	Jan. 1, 1913	Jan. 1, 1912	Jan. 1, 1911	Jan. 1, 1910
Corn, bush.....	\$0.489	\$0.622	\$0.482	\$0.623
Wheat, bush.....	.762	.880	.886	1.034
Oats, bush.....	.322	.451	.332	.428
Barley, bush.....	.499	.864	.598	.576
Potatoes, bush.....	.506	.845	.541	.560
Hay, ton.....	11.860	14.850	12.240	11.370
Cotton, lb.....	.122	.084	.144	.146
Butter, lb.....	.284	.281	.278	.287
Chickens, lb.....	.107	.098	.105	.109
Eggs, doz.....	.268	.295	.304	.305

	Dec. 15, 1912	Nov. 15, 1912	Dec. 15, 1911	Dec. 15, 1910
Hogs, 100 lbs.....	\$6.89	\$7.05	\$5.72	\$7.16
Beef cattle, 100 lbs.....	5.33	5.22	4.37	4.45
Veal calves, 100 lbs.....	6.88	6.77	6.98	6.38
Sheep, 100 lbs.....	4.21	4.05	3.71	4.54
Lamb, 100 lbs.....	5.70	5.37	4.93	5.60
Cabbage, 100 lbs.....	1.15	1.04	1.83	1.49
Apples, bush.....	.73	.64	.86	1.00
Beans, bush.....	2.30	2.25	2.42	2.20
Onions, bush.....	.84	.84	1.13	.99
Wool, unwashed, lb.....	.186	.186	.155	.178
Hops, lb.....	.178	.197	.425	.146

FROZEN ORANGES CONDEMNED

To the Editor: In your issue of February 1st, I think you dismiss rather too lightly the "poisonous character of frosted fruit." If, as you say, the charge has no foundation, it should be disposed of by some more careful procedure than merely calling it "silly."

The orange-growers of southern California know that the way out of their serious setback of this season is not through any attempts to persuade the markets to accept fruit that ought not to be eaten. They are chiefly concerned with their future standing, and if there is anything hurtful to the consumer in fruit that looks good, they wish to discover it before shipment and throw it promptly in the discard.

The writer has seen and heard enough to give him at least a provisional belief in the unwholesomeness of oranges that, while good in appearance, have developed a flavor that is "not right." Experience with frosted apples, remembered from boyhood days, may not be conclusive, the textile pattern of the two fruits being different. Already this season I have many times taken from the trees oranges that looked well and cut well, which nevertheless carried a flavor indicative of putrefaction, caused, I suppose, by the escape of contents from some ruptured partitions. I am informed by medical acquaintances that such putrefaction may produce ptomaines or something similar, and that the symptoms of illness believed to have been caused by oranges injured by freezing are like the ptomaine symptoms.

Pending further inquiry, I believe we are safe in saying that those oranges are wholesome which taste right. I should be unwilling to offer any others for sale, or to discredit any sanitary prohibitions

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directed against their offering. Conscience aside, it is not to the growers' interest to poison off their consumers, or even to make light of their caution, in advance of serious investigation.

Nordhoff. E. S. THACHER.

[It is largely a matter of taste. We presume our correspondent uses the word putrefaction as a synonym of fermentation. It is certainly not wise to sell fruit which has a disagreeable flavor: our contention was that all fermentation is not necessarily disagreeable, and that no fermentation we ever saw could be classed as poisonous, even though it might strike some tastes as disagreeable and therefore not desirable to sell or to buy. It was the "scare" in the situation which we were deploring as unwarranted.—EDITOR.]

ACRES PER AGRICULTURAL WORKER.

In 1882 there were in Germany 93.5 persons engaged in agricultural occupations for every 1,000 acres used for agricultural purposes, and in 1907 the number was 107.8, an increase of 14.3 persons to every 1,000 acres. The United States had, in 1900, 25 persons engaged in agricultural pursuits to every 1,000 acres improved land.

Looking at this problem from another point of view, in 1882 a German cultivated on an average 10.7 acres, and in 1907, 9.3 acres; while in the United States there were, in 1900, 40 acres of improved land to every person engaged in agricultural pursuits.

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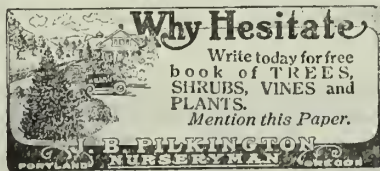
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San Francisco.

A Great Co-operative Selling Organization.

In order that those who know of our own undertakings of producers for self-selling may not get an idea that California is the only toad in the co-operative puddle; also that those who have not given the subject much attention may learn how great and efficient such organizations may become, we give from the Market Growers' Journal a very interesting sketch of doings in the "old dominion."

WHERE AND WHAT IT IS.—The Eastern Shore of Virginia Produce Exchange is a co-operative marketing association, organized under the laws of Virginia January 6, 1900. Its activities are confined to an area of about 700 square miles of the peninsula between the Chesapeake bay and the Atlantic ocean, and the principal products marketed by the association include Irish and sweet potatoes, strawberries, cabbage and onions. At present the output of 2500 to 3000 farmers is marketed.

Two million packages, mainly barrels, of produce were marketed in 1911, and during 1912 over 4600 cars of Irish potatoes, 230 cars of strawberries, about 150 cars of cabbage, and 100 cars of onions. The total number of cars of sweet potatoes shipped by the middle of November was about 3200. The volume of trade for 1912 aggregated about \$3,000,000. Shipments are made to all sections of the United States, except the Pacific coast, and also to a number of Canadian markets.

No member of the association is permitted to turn any part of his produce over to local solicitors or sell any part of it to speculative buyers to be sold in competition with the goods of the association. A person can secure membership by becoming a stockholder, the tenant of a stockholder, or by purchasing (for \$1) a "shipping" privilege.

The association is divided into 34 local divisions, each of which includes from one to four shipping points. Each local division elects annually a director of the general board and an agent for each of its shipping points.

A local inspector is appointed for each shipping point, but in order to keep these inspectors as free from local influence as possible their selection is left to the board of directors instead of to the local divisions. The general office of the association is located at Onley, Accomac county, Va.

The administration of details of the business and, in a large measure, the shaping of its general policies have been left to the general manager and the secretary-treasurer of the association.

The shipping season begins with strawberries, about May 1, and extends with a succession of products until December, when the last of the sweet potato crop is handled.

METHODS.—The produce is brought in carts or wagons to shipping stations. Here the local inspector examines each load, being required to empty at least one barrel from each load of Irish or sweet potatoes. If the standard of the association, as to size and filling of packages and quality, condition and culling of contents, has been maintained, the inspector permits the cotton tops of the barrels to carry the "Red Star Brand," the registered trade-mark and official seal of the association.

If the requirements of the association are not maintained the inspector loads the produce into an "unbranded" car, or they are consigned to an official selling agent of the association to be sold upon examination by the buyer in some of the nearby Eastern markets.

The local agents keep records of all deliveries of produce, and, after sale, distribute to individual growers the proceeds when received from the general office in the form of a check covering the entire day's sales.

All sales are made by the sales department at the general office upon telegraphic quotations, open for acceptance only on date of offer, and each day's loading is cleaned up before the following day.

FIXING PRICES.—In determining prices, the general manager and his assistants are guided by information from two sources. From a private switchboard in the general office constant telephonic communication is maintained with each of the 44 shipping points. Early each morning the local agent at each point informs the general office of the probable extent of his loading for the day, and at intervals during the day gives infor-

Bean Giant Sprayer

MOST PERFECT POWER OUTFIT IN THE WORLD

The Bean Giant will do more work at less cost and with less trouble than any other power sprayer on the market, without exception. It is the very acme of efficiency.

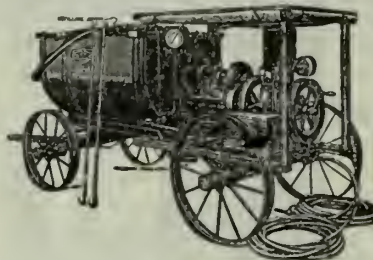
The engine and pump are direct connected, which makes slipping impossible. The Bean Pressure regulator is safe, sure and dependable. It saves from $\frac{1}{4}$ to $\frac{1}{2}$ the gasoline and the same proportion of wear and tear on engine and pump.

The bell metal ball valves cannot corrode, clog or stick. The porcelain-lined cylinder never wears out. The underneath suction avoids priming, increases capacity, and saves replacing cracked hose. The steel frame affords perfect rigidity and is much more durable than the old style wood frame.

There is an iron well in the tank which makes the tank easy to clean and drain. The patented cut-off and air suction in the tank makes it unnecessary to put out the suction hose. Every detail of the Bean Giant has been worked out to its greatest perfection. You ought to know more about it.

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Bean Spray Pump Co.

Oldest and Largest Spray Pump Factory in the U. S.

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EASTERN FACTORY, BEREA, OHIO

CHOICE FRUIT TREES

BY THE OLD AND RELIABLE SMYRNA PARK NURSERIES

Apple, Cherry, Peach, Pear, Apricots, and Figs a Specialty.

VERY SELECT TREES

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SMYRNA PARK NURSERIES

Ceres, California

Campin & Moffet, Props.



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FERTILIZE
Fruit Trees and Vines

Mixtures especially prepared for Fruit Trees of all kinds, also for Vines, Berries, and Vegetables. Write for Booklet.

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ARE YOU INTERESTED IN APPLE PLANTING? IF SO,
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N. Y. Pippin
Winter Banann
Yellow Bellefleur
Yellow Transparent
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Red Astrachan
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Rome Beauty
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Delicious
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A post card will bring you our price list and descriptive Catalogue. Your order will bring you these trees, freight prepaid, and if given proper care and cultivation, they will bring you an income that will bring you to the sunny side of Easy Street.

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Catalogue and prices on application.

THOS. S. DUANE, Prop., Martinez, Cal.

German German German German

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Direct Fertilization—The application of nitrogen gathering bacteria direct to the seed insures fertilization, in that it cannot be lost to the seed.

Inoculation as the best means of fertilizing legumes is an assured success and the expense is so small (\$2.00 an acre, \$9.00 for five acres) that maximum crops are within the reach of all.

Our inoculation is a permanent fertilizer for the soil.

For several years we have been selling

FARMOGERM

the only commercially successful preparation of bacteria. We can refer you to many highly pleased customers who have used it.

ALFALFA BEANS CLOVERS PEAS

all respond readily to inoculation with Farmogerm, and

200% Crops

are not uncommon. For Farmogerm booklet and our 1913 Complete Catalogue, address

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German SEED & PLANT CO.
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326-328-330 SO. MAIN ST.
LOS ANGELES, CALIFORNIA

BERRY PLANTS

LOUIS F. SCRIBNER
PASADENA, CAL., R. F. D.

Free Illustrated Price List.

ation as to the number of cars actually added and awaiting sale. The question supply is in this way accurately judged; that of demand is covered by telegraph.

Full telegraphic information is received daily from the New York representatives of the association and from its five resident salesmen in other market centers of the United States and Canada as to the exact conditions there prevailing and the offerings and supplies received from other producing sections.

In addition to resident salesmen in certain market centers, local brokers are employed in a number of markets. In a great number of other markets, embracing probably a majority of those in which the association sells, direct telegraphic communication is maintained with wholesale buyers, and sales are made and adjustments effected without any intermediation.

In one season the item of telegraphic expense of this association reached a total of \$20,000, but the use of a private code has reduced this expense.

MAKING SALES.—Sales are made f. o. b. loading point, the buyer to assume the risk of delay or normal deterioration in transit. Many losses are sustained each season from damage to or defects in produce which cannot be shown to have arisen from causes fairly included within the risk taken by the buyer. These losses and those resulting from occasional bills found to be impossible of collection are borne by the association, and the individual shipper is guaranteed against every sort of loss except that arising from the possible decay of his goods which would most probably have resulted from improper handling in the field or lack of reasonable care in protecting his products from extremely hot or cold weather. In general, however, even this exception is not insisted on, and it is the usual practice of the exchange to pay in full for all produce delivered to it, regardless of losses, except during occasional periods of extreme weather conditions and after express warning has been given of the need of extra care.

How It Pays.—All expenses of the ex-

change are met by a commission of 5% on the goods sold by it, and a rate of 3% on the small quantity of produce, chiefly odd lots and off-grade goods, which it consigns to official selling agents in nearby Eastern markets. Out of these commissions a surplus of about \$80,000 has been accumulated in favorable years, and this, with the paid-in capital stock of \$42,000, is deemed a sufficient working capital. Henceforth only one-half of the annual net earnings is to be carried to the surplus fund, and the remainder shall be distributed each year among all the exchange shippers in proportion to the amounts of produce they contribute.

LONGEVITY OF REDWOOD HIVES.

The editor of the American Bee Journal is evidently a man with faith to believe. He recently published a note from a Californian that he was buying hives made of redwood which were 15 years old and were as sound as a dollar. Commenting upon this, Mr. H. Vogeler of Oakland sent him a newspaper clipping from the Bee, of Sacramento, which says:

"Redwood is easily worked, takes a beautiful polish, and is one of the most durable of the coniferous woods of California. It resists decay so well that trees which have lain 500 years in the forest have been sent to the mill and sawed into lumber. The wood is without resin and offers a strong resistance to fire. Insects seldom injure it because of an acid element it contains."

"Redwood timber," says Dr. Hermann von Schrenk, of the Bureau of Plant Industry, "possesses lasting qualities scarcely equaled by any other wood. Although very light and porous, it has antiseptic properties which prevent the growth of decay-producing fungi. So far as is now known, none of the ordinary wood-rotting fungi grow in redwood timber. It is because of its resistance to most forms of decay that the redwood reaches such a great age."

Mr. Vogeler states that he has seen hives 40 years old made of redwood and as good as new.

Some one will say: How can they tell that a dead tree has been lying in the forest 500 years. We asked the same question when we visited the big sequoias. But the answer was at hand, for our attention was at once called to younger trees apparently of that age, and already growing right where the head of the giant must have struck in its fall. But the California climate is especially adapted to the durability of wood, for the rainy season is short.

When all is said, however, the redwood has wonderful lasting qualities. We see no reason why it should not be used extensively for hive making, since our white pine forests are rapidly disappearing.

100,000 Sour Orange Seed-bed Trees

Navels—Valencias—Tangerines
SOUTHLAND NURSERIES,
R. D. 1, Pasadena and Terra Bella,
Tulare Co., Cal.
F. H. DISHBROW, Prop.



THE CLIPPER
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DOES RID YOUR ORCHARD OF INSECT PESTS AND FUNGUS TROUBLES.

DOES GIVE ADDED VITALITY THAT PRODUCES FOR YOU MORE FRUIT AND MORE GOOD FRUIT.

Rex Solution

Compounded after our own distinctive process is so put together as to give the

MAXIMUM AMOUNT OF SULPHUR IN ITS MOST EFFICIENT FORM

Rex Ingredients are processed—
Not simply thrown together and boiled.

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REX ARSENATE OF LEAD has for years killed every worm in hundreds of orchards. It will do the same for you this year. Try it.

Spray This Spring—

Write, giving us the number, variety and kind of trees under your care, telling us what troubles you have. Spray Anyhow. It Pays. Our Motto—"Rex must be the best. The King of all Spray Materials."

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Bolton Orchard Heaters Insure Your Fruit Against Frost



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First-class trees in heavy surplus.

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Grape Vines

All commercial sorts at lowest prices.

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Main Office

FRESNO, California

Sacbrood: a Disease of Bees.

Dr. G. F. White, bacteriologist of the division of entomology of the U. S. Department of Agriculture, has just concluded a careful investigation of a disease of bees which will be recognized as occurring in this State as well as elsewhere, and Dr. White's conclusions should be considered by all bee-keepers:

A DISEASE OF THE BROOD WHICH IS NOT FOUL BROOD.—There is a disease of the brood of bees that has attracted considerable attention among bee-keepers that is neither American foul brood, European foul brood, pickle brood, chilled brood, nor starved brood. This disorder of the brood has for many years been recognized by bee-keepers as being different from foul brood. Doolittle, of America, in 1881 wrote of a disease which he says is similar to and called foul brood but which is not foul brood. He writes that the larvae die here and there throughout the brood comb and that the disease may disappear entirely or it may reappear the next season. Jones, of Canada, in 1883 wrote also of a disease which results in a dying of the brood, with appearances similar to foul brood; but he states that the disease is not foul brood. He says that the bees frequently remove the dead brood and that no further trouble ensues. Simmins, of England, in 1887 wrote of dead brood which he says is not foul brood, and describes the difference in appearance between the brood dead of the disease and brood dead of foul brood. He states, furthermore, that the condition is different from chilled brood, and that Cheshire did not find any microscopic evidence of disease in larvae dead of the disease. An editorial in one of the bee journals in 1892 is of particular interest at this point. The editor wrote that he had recently encountered dead brood which did not seem to be infectious and which lacked two decisive symptoms of the real foul brood, viz.: the ropiness and the glue-pot odor.

My own study of this dread brood, recognized by the bee-keepers as being different from foul brood, was begun in 1902. Eight samples labeled "pickled brood" were received from the bee inspectors of New York State during 1902 and 1903. These samples were examined and were found to be practically free from micro-organisms. The results of these examinations were published in January, 1904. Burri, of Switzerland, in 1906 reported the results of the examination of 25 samples of brood material thought by the bee-keepers to be diseased. He placed the results of his examinations under the following headings: "Sour brood," "stinking foul brood," "non-stinking foul brood," and "dead brood free, from bacteria." Four of the 25 samples examined contained dead brood free from bacteria and unaccompanied by other diseases. K rstner, of Switzerland, in 1910, in classifying the results obtained from samples examined by him, made the same classification as made by Burri. During the past six years 326 samples of this disease have been received by the bureau of entomology and diagnosed in its bacteriological laboratory.

There is, therefore, a disorder attacking the brood of bees in which brood dies, but in which there has not been demonstrated any micro-organism to which the cause of the trouble could be attributed. For this disease the name of "sacbrood" is here suggested.

THE NAME SACBROOD.—My first examination of this dead brood was made in 1902, when samples were received diagnosed by bee-keepers as "pickle brood." The fact was easily determined at that time that the disease could not be con-

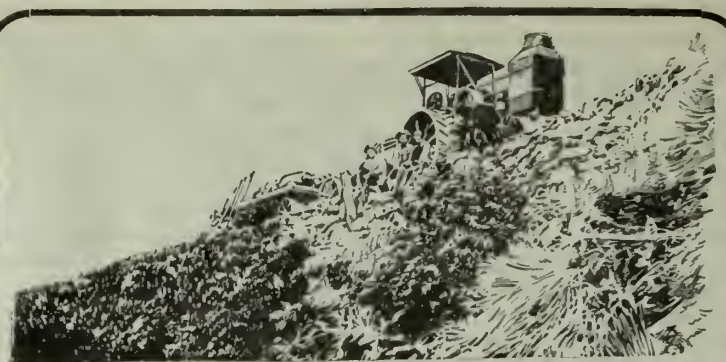
sidered a fungous disease and was therefore not pickle brood. In the past my preference has been to refer to this condition only as the "so-called pickled brood." Since the disease is not pickled brood, it will produce less confusion and be more scientific if the term "pickled brood" be entirely omitted in the name for the disease. Many larvae dead of this disease can be removed from the cell without rupturing the body wall. When thus removed they have the appearance of a small closed sac. This character suggested the name "sacbrood." The name has the virtue, therefore, of being both appropriate and brief.

THE SYMPTOMS OF SACBROOD.—The strength of a colony in which sacbrood is present is frequently not noticeably diminished. When the brood is badly infected, however, the colony naturally becomes appreciably weakened thereby. The brood dies after the time of capping. The dead larvae are therefore almost always found extended lengthwise in the cell and lying with the dorsal side against the lower wall. It is not unusual to find many larvae dead of this disease in uncapped cells. Such brood, however, had been uncapped by the bees after it died. In this disease the cappings are frequently punctured by the bees. Occasionally a capping has a hole through it, indicating that the capping itself had never been completed. A larva dead of this disease loses its normal color and assumes at first a slightly yellowish tint. "Brown" is the most characteristic appearance assumed by the larva during its decay. Various shades are observed. The term "gray" might sometimes appropriately be used to designate it. The form of the larva dead of this disease changes much less than it does in foul brood. The body wall is not easily broken, as a rule. On this account often the entire larva can be removed from the cell intact. The content of this sac-like larva is more or less watery. The head end is usually turned markedly upward. The dried larva or scale is easily removed from the lower side wall. There is practically no odor to the brood combs.

THE INFECTIOUS NATURE AND CAUSE OF SACBROOD.—In the study of samples of this disease received directly from bee-found, either culturally or microscopically, to which the cause of the disease can be attributed. This fact, together with the fact that the disease often disappears without any great loss to the colony, would tend to indicate that the disease is not infectious. The experimental evidence which I have obtained proves, however, that the disease is infectious.

EXPERIMENTAL WORK WITH SACBROOD.—Evidence has been obtained by me that sacbrood can be transmitted from diseased to healthy brood. Three healthy colonies were inoculated each with diseased material from a different locality, and in each of these three experimental colonies the disease was produced. These results indicated at once that sacbrood is an infectious disease. The microscopical and cultural study of the infected and dead brood in these experimental colonies, as in the case of the diseased brood in samples direct from the apiary, failed to show any organism to which the cause of the disease could be attributed.

This led naturally to a study of the condition to determine whether or not the virus of the disease was so small that it had not been seen. To obtain evidence on this point material containing the virus was filtered, using an earthenware filter. The three colonies in which the disease had been produced experimentally furnished the disease material



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You may not farm the hillsides but you probably have hills to climb on the way to market and OilPull Tractors will take a full load up a stiff grade. We have an interesting pamphlet "Through the Mountains of Colorado with an OilPull Tractor." It will convince you. OilPull Tractors are strong—they last a long time—are reliable, inexpensive to buy and to operate. They carry enough fuel for a twenty mile trip under load.



Send for our valuable Data-Book, No. 353, on the OilPull and ask the name of our nearest dealer.

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485

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CHILEAN

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has been proved by careful research to be the best form of Nitrate for orange and olive culture. It is available *instantly* and is always active. Easiest to apply—uniform—most economical in the end. Not a stimulant—but a real plant tonic and energizer.

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grafted on California Black Walnut Root. Frost-proof, blight-proof. Fill well and bear well. Good money makers. We carry the Wiltz Mayette and Vrooman Franquette. Both have been thoroughly tested. Prices reasonable.

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DEMING THE WORLD'S **PUMPS**
BEST

An ideal high pressure power sprayer, with utility engine, agitator, 200-gal. solution tank, hose, nozzles. Complete, ready for operation.

GUARANTEED

best in design, workmanship and materials. Purchase price cheerfully refunded if not satisfactory or found as represented.

SAVE

on your first cost and half your marketing expense by spraying your trees with a DEMING.

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AGENTS WANTED.

SPRAY WITH
HEMINGWAY'S
LEAD ARSENATE

EASY TO MIX
STAYS IN SUSPENSION
HONEST PRICES
HIGH ANALYSIS

15% Arsenic Oxide guaranteed.
Send for booklet and prices.
Full stocks carried by Coast Agent,

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Callifornia and Battery Sts., San Francisco, Cal.
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PLANT GIANT WINTER RHUBARB
TO YOUR ACREAGE.

\$2000 per acre can be made.
PLANTS NOW READY FOR
SHIPMENT; also BERRIES,
SMALL FRUIT, CACTUS,
ASPARAGUS, Etc.

Write for information.
J. B. WAGNER,
(The Rhubarb Specialist),
Pasadena, Cal.

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NURSERY COMPANY

Plant Almonds or Walnuts. Safe investment. We have the best varieties. They thrive in many soils. Please call, or write to us at

MORGAN HILL, Cal.

TREES

A general line of Oranges, Lemons, Deciduous Nursery Stock, Roses, Shrubs, etc.

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Corner 3rd and Bush Sts., Santa Ana, Cal.

KETSCHER'S NURSERY

All leading varieties of deciduous, citrus, grafted walnuts and ornamental trees.

SANTA ANA, CAL.

If you want FIRST-CLASS NURSERY STOCK, and want to save money, just write us; we will show you how.

We grow a full line, reliable stocks—Apples, Pears, Cherries, Prunes, peaches, Berries, etc.

CARLTON NURSERY CO.,
Carlton, Oregon.

TREES

Write for prices on all varieties of Nursery Stock.

Dollar Strawberry Plants, \$5.00 per M.
Burbank's Patagonia Strawberry Plants, \$2.00 per 100.

UNITED FRUIT COMPANY,
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EUCALYPTUS

We have our usual stock of high-grade trees, to which we invite correspondence of intending planters.

W. A. T. STRATTON
Petaluma, Cal.

for the experiments. Larvae, sick and dead, of sacbrood were picked from the combs, crushed and diluted with sterile water. This suspension was filtered by the use of the Berkefeld filter. From each of the three diseased colonies a separate filtrate was obtained, which was fed in sirup to healthy colonies. Six colonies were thus fed—two with each of the three separate filtrates. As a result of these inoculations sacbrood with typical symptoms of the disease was produced in all of the six colonies thus fed.

One more experiment will be mentioned at this time. In this the diseased brood used was taken from one of the colonies in which the disease had been produced by feeding filtrate. Disease material from this colony was filtered as before and fed to two healthy colonies, with the result that sacbrood was produced in each. It might be mentioned here also that other experiments made indicate that the virus is killed by the application of a comparatively small amount of heat.

In 11 colonies, therefore, sacbrood has been produced experimentally by feeding to healthy colonies the virus of this disease. In 8 of the 11 colonies the disease was produced by virus that had passed through the Berkefeld filter. The disease, therefore, which bee-keepers have for a long time recognized as being different from either American or European foul brood has now been demonstrated to be an infectious disease that is caused by a filterable virus.

The conclusion to be drawn from this work, therefore, is that sacbrood is an infectious disease of the brood of bees caused by an infecting agent that is so small, or of such a nature, that it will pass through the pores of a Berkefeld filter.

The three principal brood diseases, then, are now all known to be infectious. These diseases are: American foul brood, caused by Bacillus larvae; European foul brood, caused by Bacillus pluton; and sacbrood, caused by a filterable virus.

GRAPES IN SAWDUST.

Packing grapes in redwood sawdust has passed the experimental stage in San Joaquin county and promises to become the most approved method of preserving all varieties. Advices from New York show that the last car of Emperors packed thus had been sold in January for \$2022, or at the rate of \$3.57 per drum.

In all there have been fourteen of these cars, which grossed \$24,453.67, each netting the grower a handsome profit. Over 2500 carloads of table grapes are shipped from this county annually, and heretofore the growers margins were materially reduced by reason of the fact that large quantities rotted in transit. By the new method every grape is preserved and its lusciousness fully retained.

SPRAYING ALMONDS.

To the Editor: I would like to know if it is all right to spray almond trees with lime-sulphur this late. The buds are swelling, but don't show signs of opening yet. Will the spray injure them? I am going to apply it 1 to 10.

Dunnigan. GROWER.

The lime-sulphur spray of the strength you suggest can be applied up to the time that the buds really open. After the buds open it will have to be diluted from 1 to 10 to about 1 to 100 on the stone fruits. The actual dilution will depend upon the original strength of the material. Directions will come from the manufacturer.

D. J. W.

Ask for SNOW'S GRAFTING WAX

IN USE ALL OVER THE STATE.

For sale by all the largest groceries, or
D. A. SNOW, Lincoln Ave., San Jose, Cal.

CITRUS Trees

WE STILL
HAVE A GOOD
LINE OF

Navels and Valencia LATE ORANGES

ABSOLUTELY UNTOUCHED
BY FROST

Our stock is grown under ideal soil and climatic conditions, and is straight, clean and thrifty.

Write us for special
prices on large orders.

In addition to growing all the best varieties of oranges, lemons and pomelos, we also carry a complete stock of

DECIDUOUS FRUIT TREES

in nearly all the most wanted varieties.

PECANS AND ALMONDS

We have a fine stock of these popular nuts and invite your inspection and inquiries.

EVERGREENS AND ORNAMENTALS.

In our Laguna Nurseries we carry a fine assortment of ornamental trees, shrubs, vines, plants, palms, roses, etc.

Write for Prices, or—
Call and see us.

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Take Hooper Avenue yellow car to Washington Street and walk 2 blocks east, or take Watts local direct to nursery yards and offices.

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That will Grow.
That are True to Label.
That are Free From Disease.

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Red Gravenstein

Apple Trees for Fall Delivery.

See what Prof. E. H. Van Deman says of this wonderful new apple:

"For two years past I have seen the Red Gravenstein Apple at some of the fruit fairs in the West, and among them the National Apple Show at Spokane. I have also eaten it, and it is a true Gravenstein in every particular except color. In this respect it far surpasses the old variety, because it is almost solid red and exceedingly attractive. I think this difference will cause it to sell even better than the common Grevenstein, from which it is a bud-sport."

Hanford Nurseries

CLARKSTON, WASH.
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Some California Horse History.

Although California stands second of all the States for automobiles, it should not be forgotten that for horses her position is distinctively great. A writer for the Breeder and Sportsman recently made these general statements: "Pitted against all the States in the Union where thousands of trotting and pacing colts are bred and raced yearly, is it not a record to be proud of to know that from only a little portion of the Golden State more champions trace their origin than from all these other places?"

"In the lists of champions at older ages California's reputation does not suffer in comparison with others, and as the tens of thousands of people (some say a million) are to arrive here during the next ten years, the interest in breeding light harness horses to supply the markets of the world will increase, and thriving stock farms will be seen dotting our rich valleys and foothills. As horses can be raised here at a less cost, and with less risk physically than in any other part of the world, there are good grounds for the belief that with the introduction of more of the strains of blood that are now deemed so valuable throughout the Eastern and Middle Western States, the records held by the champions of the present day will be erased, and in their stead there will be figures placed which will be as astonishing as the records made when Maud S 2:08½ lowered the world's record and Directum 2:05¼ lowered the stallion record for horses of his age."

The writer proceeds to cite instances upon which his generalization is based. We quote at some length, for the citations are of great interest:

While the trotting horse men of the East have been striving to breed trotters and pacers that, as yearlings, two and three-year-olds, will become champions, and while these youngsters which are astonishing the horsemen throughout the world are achieving results that twenty years ago would have seemed impossible, California horses and those bred from our California stock are strongly in evidence. In reviewing the list of champions since 1881, we find that in the roll of honor of the yearling champions there has been Pride 2:44½, and Hinda Rose 2:36½. Sadie D. lowered this last record three-quarters of a second in 1887, six years after, and she was the only Kentucky-bred yearling to figure in the list of champions, for, three weeks after, Norlaine, by Norval 2:14¾, trotted over the Bay District track in 2:31½; unfortunately, this great colt was destroyed in a fire that soon after took place there. Freedom, a San Mateo-bred colt, was the first 2:30 yearling; he got his mark of 2:29¾, and Wm. Corbitt, his breeder, refused \$50,000 for him.

There was always a bitter rivalry, prompted by an unaccountable jealousy, between Mr. Corbitt of the San Mateo Stock Farm and Senator Leland Stanford of the Palo Alto Stock Farm, and the remarkable achievement of Wm. Corbitt's Freedom in taking the glory from the ill-fated Norlaine, spurred Senator Stanford on to wrest the crown away, so the following year Charles Marvin, with Bell Bird, lowered the record twice to 2:27¾ and 2:26¼; then along came G. Valensin's speedy youngster, Frou Frou, driven by Millard Sanders over the kite-shaped track at Stockton. He gave this youngster three miles in seven days. Time, 2:26¼, 2:26, and 2:25¼. These were all Californians, with the exception, as stated above, of Sadie D.

In 1893 Pansy McGregor trotted in 2:23¾, then the following year at the San Jose track, Adbell trotted a mile in

2:23. This record remained for five years until Miss Stokes, by Peter the Great, out of Tillie Thompson, by Guy Wilkes, a San Mateo Stock Farm mare, lowered the record to 2:19¼.

In 1910 Wilbur Lou, another California-bred yearling, trotted in 2:19½, thus being crowned the King of Trotting Colts.

In 1912 Airdale by Tregantle 2:09¼, out of Fanny Summers 2:26¼, by Bow Bells 2:19¼, trotted to the remarkable championship record of 2:15¼. Bow Bells, sire of his dam, was a California-bred stallion, being by Electioneer out of Beautiful Bells 2:29½, by The Moor.

Among the two-year-old champions, California, as a State for the breeding and development of them, does not suffer in comparison with any other, considering the limited number of mares bred here. The holders of the fastest records, or those that won records below 2:30, commenced with Sweetheart at Sacramento, September 28, 1880, when she got a record of 2:26¼. Fred Crocker cut off a second and a quarter from this in November of that year; then the Palo Alto fever to get world's records began to rage. Wildflower, the following year, got a record of 2:21; then Sunol, another Electioneer, trotted in 2:20½ in 1888, and eight days after placed the two-year-old record inside the 2:20 list by getting a mark of 2:18. Many predictions were then made that a faster two-year-old trotter never would appear. Charles Marvin, however, was of a different opinion, for he knew that by the kindergarten system in vogue at Palo Alto there would be some youngsters developed that would obliterate the splendid record made by Sunol. In 1891, at Stockton, he drove Arion, by Electioneer, a mile in 2:15¾, and, as he alighted from his sulky, remarked: "That was a good mile, but he can do better with another month's work here." On October 21, he drove him a mile in 2:14½, and on November 10, just as the sun was sinking in the west, he drove this beautifully gaited two-year-old a mile in 2:10¾ and the news was flashed around the world.

J. Malcolmson Forbes, a very wealthy man living near Boston, hearing of this performance, sent his check for \$125,000 for the youngster and got him. This was, and is today, the record price for a two-year-old horse of any breed.

This trotting record, 2:10¾, made by Arion, to a high-wheeled sulky, stood for eighteen years, until 1909, the two-year-old filly Native Belle, by Moko, out of Julia D. C., by Gen. Wellington 2:30 (a full brother to the ex-queen of the turf Sunol 2:08¾, by Electioneer) lowered it to 2:07¾.

The following year, 1909, Justice Brook wiped out Arion's two-year-old stallion record by getting a record of 2:09½. This colt was sired by Barongale, out of Expectation by Autograph, and this record still stands.

The three-year-old champions that trotted in 2:20 or better consist of Hinda Rose, 2:19½, by Electioneer (1883); Sable Wilkes, 2:18, by Guy Wilkes 2:15¼ (1887); Axtell, 2:14, by William L., afterward sold for \$105,000; Sunol, 2:10½, by Electioneer (1889); Arion, 2:10½ (1892), and Fantasy, 2:08¾, by Chimes, son of Electioneer (1893). Arion's record stood for 15 years, until 1907, when Kentucky Todd, by Todd, out of Paronella by Parkville (son of Electioneer and Aurora 2:27, by John Nelson) lowered that stallion's mark to 2:08¾, a record also held by Fantasy.

The craze for championship records spread and another great performer, General Watts, by Axworthy, 2:15½, driven over the Lexington, Ky., track,

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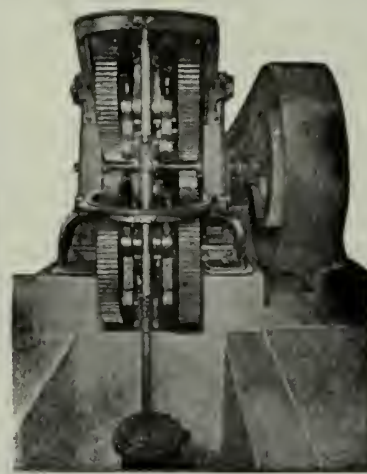
King Lancaster, Grand Champion Bull, California State Fair, 1909-1910-1911.

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trotted in 1907 to a record of 2:06¾.

Three years after, Colorado E., by The Bondsman, a stallion that has been standing in California for the past two years, trotted a mile in 2:04¾—the present world's record, while the fastest gelding is that good son of Peter the Great called Peter Thompson, who has a record of 2:07½, and he is out of Lydia Thompson, a mare bred in California that was sired by Guy Wilkes, 2:15¼.

Not alone is California so strongly represented in the lists of champions among the yearlings, two and three-year-old trotters, but she has figured, and does today, as a place wherein several champions have been bred and also as a State to which many of the greatest pacers trace. Frank Perry, 2:15, the world's champion yearling pacer, is at present a member of R. J. MacKenzie's string at Pleasanton; this wonderful colt carries 75% of the blood that made California horses famous. Fleeta Dillon (2) 2:08¾, is the champion of her age and sex. She was by Sidney Dillon; Directly (2), 2:07¾, the champion of his sex and age, was by Direct, 2:05¼; Hymettus (3), 2:08½, the champion gelding, was by Zombro, 2:11; Klatawah, 2:05½, and Jim Logan, 2:05½, joint holders of the world's championship record for three-year-old stallions, were by Chas. Derby, 2:20. This year their record was eclipsed by the one made by Impetuous Palmer, 2:05¼; he is by Impetuous Devil, 2:21¼, out of Lile Palmer, by Norval King, son of Norval, 2:14¼, one of Electioneer's best speed-producing sons, and Hemet, another Californian, being by Kinney Lou, 2:07¾, out of Lady Zombro, by Zombro 2:11, holds the world's record, 2:08¼, for three-year-old pacing geldings.

Hence, it can be seen that when horsemen, breeders, owners, trainers and turf writers assemble to consider what place is the best to develop horses that will show extreme speed at the earliest age, they cannot in justice overlook the reputation in this respect California has achieved, nor ignore its many claims.

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SHOULD SHEEP BE FUSSED UP FOR SHOWS?

The Shepherd's Journal takes delight in the way Mr. Lively declared on open house at the Panama fair for sheep exhibitors to set up their own standards. It says, editorially:

"When Mr. Daniel O'Connell Lively chief of the Department of Livestock, Panama-Pacific International Exposition, declared himself in favor of leaving to various sheepbreeders' associations the formulating of rules that shall apply to the condition in which the sheep exhibits shall appear at this great show of 1915, he approved that it is level-headed and the right man in the right place, and it is safe to say that no association is going to enforce any arbitrary rules that will cause friction among its members, especially those members who spend their time and money in raising stock for the great shows of the country. not a single valid excuse why an exhibitor should not put his exhibits in the arena in such condition of fitting as he sees fit. It has been advanced by some that coloring and trimming deceives the novice. Why? Can a novice distinguish between a good and a poor quality sheep in the rough anymore than he can in its showyard dress? So far as deceiving the judge goes, providing he really is a judge, all the coloring and trimming in the world has not a particle of effect. As we have pointed out on several occasions, the coloring of show sheep is a harmless practice and not as some desk shepherds, who could not distinguish a Shropshire breeding ewe from an Oxford breeding ewe, or a Hampshire breeding ewe from an Oxford breeding ewe were they thrown promiscuously together, would have us believe, a practice intended to deceive the novice. Take a poor sheep from the flock, trim and color it all you wish and put it side by side of a really good uncolored show sheep and no one, no matter how much of a novice he may be, would select the colored sheep as the best representative. Coloring does not add or detract from the size, length or breadth of the sheep. It simply helps the shepherd in making his sheep matchy and even in color of fleece. Anyone who knows the merest thing about trimming a sheep knows that in trimming it is almost impossible to have a newly trimmed sheep appear anything but spotted in its fleece unless a little coloring is used, excepting where they have all been washed and blocked out at about the same time. There is no law to prevent a shepherd coloring his sheep and never should be. He has, and should have, the right to dress his exhibits to suit his tastes just as the herdsman or groom has a right to dress theirs and, as we have always contended, as soon as there is any attempt to bar well-fitted and carefully prepared ovine exhibits from the show-ring the fitting of the show sheep will become a lost art and sheep shows a thing of the past."

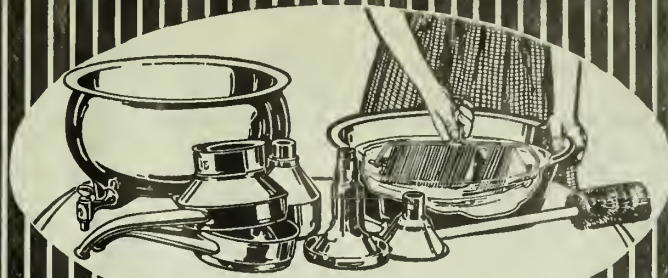
[After all, isn't it merely a question of taste, as the monkey said when he painted his tail sky-blue? Certainly, ribbons and hair dye would not interfere with breeding power, as is the case when animals are disposed, as Mr. Carneal forcibly pointed out in a recent issue. Let them fuss up all they like; why not?—EDITOR.]

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Agricultural Fairs and Exhibits.

The Secretary of Agriculture has recently issued a bulletin containing a list of 2,740 fairs and exhibitions devoted to agriculture, livestock, and related subjects. Of these, 764 are in the East North Central States, 573 in the West North Central States, 372 in the Middle Atlantic States, 229 in New England, 211 in the South Atlantic States, 181 in the East South Central States, 157 in the West South Central States, 129 in the Pacific States, and 124 in the Mountain States.

In the classification by areas contributing to the exhibits, it appears that 839 are county fairs, 466 are inter-county fairs, 250 cover less than county area, 200 are inter-State fairs, 155 are State fairs, 129 are national, 102 are international, and for 599 no information was received with regard to area covered.

Classification with regard to the kind of exhibit shows the following results: General agriculture, 1,647; poultry, 685; poultry and pet stock, 86; horses, 81; horticulture, 80; dogs, 74; livestock, 22; poultry, pigeons, and pet stock, 21; poultry and pigeons, 19; floriculture, 13; dairy products, 7; corn, 4; apiculture, 1.

A brief history of agricultural fairs in this country is found in the bulletin. What was primarily a market fair was held in October, 1804, "on the Mall on the south side of the Tiber, extending from the bridge at the Center Market to the Potomac," in Washington, D. C. The city government appropriated \$50 toward a fund for premiums and residents subscribed an equal sum. This amount was awarded "to the best lamb, sheep, steer, milch cow, jack, oxen, and horse actually sold." The third fair was held in November, 1805, after which these market fairs were discontinued.

More closely related to the inception of the fair movement in this country were the annual "sheep shearings" established and continued for a dozen years by George Washington Parke Custis at "Arlington," his estate opposite Washington, D. C., on the Virginia side of the Potomac River. A program of one of these rural festivals, as published in a Georgetown, D. C., newspaper of the day, specified premiums for certain classes of sheep and of wool, for homemade fabrics and garments, and for soil improvement.

The first full-fledged agricultural fair, primarily for competitive exhibits instead of for marketing, was held at the Columbian Agricultural Society, which was organized in 1809 by a number of gentlemen interested in agriculture, residing in Maryland, Virginia, and the District of Columbia. Its first exhibition was held in Georgetown, May 10, 1809, and the National Intelligencer of that day reported that it was "attended by a numerous assemblage of members of the Society, among whom we noticed the President and his lady, the Secretary of State, the Secretary of the Treasury, the Secretary of War, the Comptroller, Register, etc., and many other ladies and gentlemen of respectability." This fair was mainly devoted to domestic animals and

manufactures. Semi-annual fairs were held until the spring of 1812, when the war with England and the expiration of the time for which the society was organized caused its discontinuance.

The oldest existing agricultural society that holds fairs is the Berkshire Agricultural Society, Pittsfield, Mass., which held its first fair in the autumn of 1810, or only one and one-half years after the first fair of the Columbian Agricultural Society.

LARGE AREAS RELEASED FROM SHEEP SCAB.

Secretary Wilson has issued an order, taking effect February 1, releasing from the federal quarantine for sheep scab 18 counties in California and 10 counties in Nevada, aggregating over 100,000 square miles in area. This action has been taken as a result of the work which has been carried on by the Bureau of Animal Industry in co-operation with the State authorities for the eradication of this disease.

About 15 years ago sheep scab was prevalent throughout most of the territory west of the Mississippi river. It was becoming a serious handicap to the sheep industry and was constantly spreading. The Government, with the assistance of State authorities, undertook first to control the disease and later to stamp it out. This work has been so successful that most of the infected territory has been freed of the disease and released from quarantine. The territory still remaining in quarantine consists of the States of Texas and New Mexico, and parts of California, Nevada, Utah, Colorado, Arizona, and Kentucky. The work of eradication is being continued in these areas.

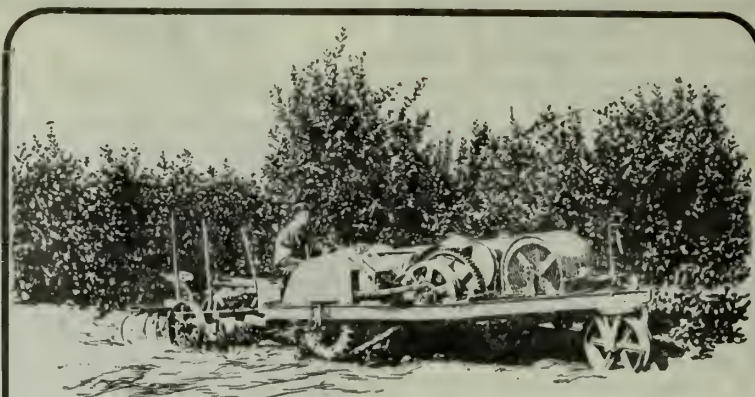
The areas released by Secretary Wilson's recent order are as follows: In California, the counties of Del Norte, Humboldt, Trinity, Shasta, Siskiyou, Modoc, Lassen, Plumas, Sierra, Nevada, Placer, Eldorado, Amador, Alpine, Mono, Inyo, Tuolumne, and San Bernardino. In Nevada, the counties of Washoe, Storey, Lyon, Ormsby, Douglas, Esmeralda, Mineral, Eureka, Lander, and Churchill. The remainder of California and the counties of Humboldt, Elko, and White Pine in Nevada remain in quarantine.

THE HORSE HOLDS PLACE.

The introduction of the automobile on farms of the United States has not displaced the horse or mule, for the latest estimate of the number of these animals on farms January 1st this year as announced by the Department of Agriculture shows more horses than ever before, except in 1909 and 1910, and more mules than in any other year on record. Horses and mules were of greater value than ever before except in 1911. The number of horses increased 58,000 over last year, and mules increased 24,000.

While the number of beasts of burden on the farm increased, the number of food animals decreased. Milch cows decreased 202,000 since January 1, 1912; other cattle decreased 1,230,000; sheep decreased 880,000 and swine decreased 4,232,000. In average value per head compared with 1912, horses increased \$4.83; mules \$3.80; milch cows \$5.63; other cattle \$5.16; sheep 48 cents; swine \$1.86.

In total value the increases were: Horses, \$105,525,000; mules, \$19,588,000; milch cows, \$107,369,000; other cattle, \$159,581,000; sheep, \$21,609,000; swine, \$79,781,000. The total value of all farm animals increased \$493,456,000, or 9.9 per cent over 1912.



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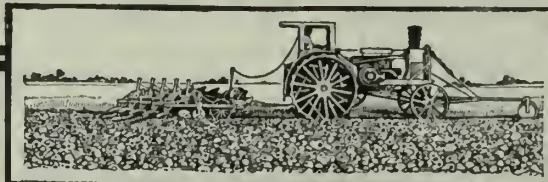


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Our Readers on Septic Tanks.

To the Editor: In the issue of the PACIFIC RURAL PRESS of January 25th appeared an article on Home Improvement. It interested me very much. In 1910 I put in my house a water system with toilets, bath, etc. About 75 feet from the house I dug a cesspool about 10 feet deep and 10 feet square. This was boarded up with redwood and a glazed sewer pipe run into it. Last summer it ran over once or twice. Now this happens every day. We run into it all the house waste and water from laundry work. I can readily understand the septic tank, but what troubles me is getting rid of the water that comes from it. Mention is made in the article that the arms of drainage tile are to run 30 to 75 feet according to the nature of the ground. My ground is quite sandy where the tank and the tile must come and the land has grape vines on it. I could get to a piece of alfalfa but it is about 350 feet away from the house. I am afraid the vines will close up the pipes.

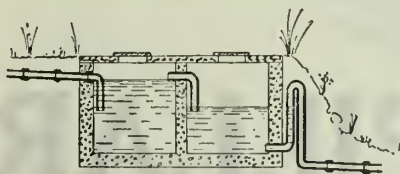
Do you think it would be best to take out the vines? I note the statement that when there is fear of tree roots closing up the openings the ends of the tile shall be left open. Now this ground lies rather level and the only way I can think would be to have the pipes end in a box of wood or concrete which could be covered up when cultivating to prevent filling with dirt. Can any other plan be used? You say allow four cubic feet of space in the tank for each person. This allows about 30 gallons of water per day per person. Farmer's Bulletin No. 270 U. S. Department of Agriculture, gives the average amount for each person as 60 to 100 gallons. Of course the only effect if the tank is too small is that it must empty oftener. I shall be much obliged for assistance and reference to anything that will give me any information.—W. J. POSSONS, Sanger.

Before going into detail on the above inquiries it will be well to give a letter from another subscriber who makes valuable suggestions. The illustrations, one published before and criticized, the other showing the type of septic tank found satisfactory, are given.

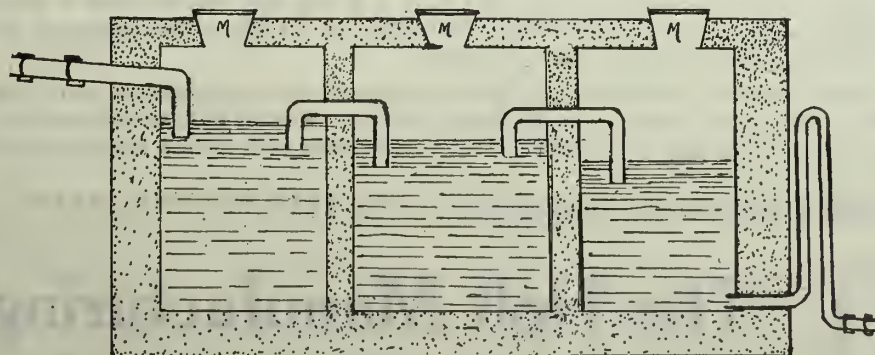
A SUCCESSFUL SYSTEM.

To the Editor: In your issue of January 25th, is an article on "Home Improvement, No. 9, A Private Sewer System."

I notice in your drawing of a septic



THE SYSTEM CRITICIZED.



THE SYSTEM SUGGESTED.

Two Propositions on Septic Tanks.

tank, what I consider two serious mistakes: First, your sewer going into the tank goes too deep and will soon clog up. It should just go below the surface.

Second, The overflow will also stop up. Instead of leaving the bacteria peaceably to do their work in the first tank, they will be drawn through the overflow until it stops up. The overflow should extend down to the clear water, so as not to disturb the blanket of bacteria. The same in the second tank. It is always better to have three tanks. I know this from experience as I have built several. The first one has been running six years and never one particle of trouble. When put in right they are a blessing, but put in wrong, they are an intolerable nuisance.—MAC, Healdsburg.

In regard to the points brought up in the first letter. If the cesspool is dried out and all material that has settled is removed it will probably work all right for a considerable time at least. Probably the grease and other material has stopped up the pores of the earth.

There is a difference of opinion regarding the size, as well as regarding the whole proposition of septic tanks. Those who consider the septic action satisfactory claim that the tanks should not be emptied too often, therefore that large tanks are better than small. The favorable temperature for bacterial action in California should make smaller tanks as good here as larger tanks in humid and colder climates.

If the tile drain by which the waste is finally led into the soil is kept open at the farther end to allow some circulation of air the roots of the vines should not bother. The tile could end in a wooden or concrete box or in an "L," one side of which extends up to the surface of the ground. A light soil like that of the ranch at Sanger is ideal for the disposal of wastes. The length of the drain will depend upon the amount of water to be gotten rid of. If a drain proves too short it is easy and inexpensive to extend it.

A description of other ways of disposing of waste water from the house that are satisfactory on small farms would be of great interest and help. F. W. Kerns, agricultural engineer, has been seen about the problem of sewage disposal on the farm and disapproves of the septic system for that purpose. He will explain a better way later.

REINFORCED CONCRETE POSTS.

To the Editor: How much reinforcing is necessary to make concrete posts tapering from 3½ inches to 6 inches, and what is the proper portion of cement to use? Do you know whether there are patents on certain kinds of concrete posts?—F. H., Wooldand.

ANSWERED BY G. D. WARREN, HENRY COWELL LIME AND CEMENT COMPANY.

The reinforcing necessary consists of

wires twisted once around each of the two reinforcing rods, the ends will nearly touch the sides of the mold.

Use a mixture of one part of cement, two parts of sand and four parts of crushed rock or screen gravel. This would mean for a post of the size mentioned in the letter and seven feet long, the following amounts of material in cubic feet for a batch enough to make six posts: Cement, 1.5 cu. ft.; sand, 3 cu. ft.; stone or gravel, 6 cu. ft., and would require about 12 gallons of water. There probably are patents on concrete posts, but we have no data at hand showing just what patents have been issued and what they cover.

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Some Effects of Cow Testing.

[Written for the PACIFIC RURAL PRESS.]

An interesting occurrence in Humboldt county showed the value of testing one's cows to see how much fat they produced about the time that the Ferndale Cow Testing Association was started. A dairyman sold out his place and herd and pointed out to the buyer two cows which he said were so unprofitable that they should be slaughtered. The buyer decided to fatten them up a little before disposing of them, but before they were sold joined the Association.

One of the cows had even been put out of her string and the boy of the house was milking her. He insisted that her milk be tested even if she was to be slaughtered, and the milk proved to be so rich that she was not only kept, but was considered one of the best cows in the herd. The other cow also gave such rich milk that her life was saved and she too proved better than the average. The saving of these two cows equaled the cost of testing the whole herd for a year. Other improvement in the herd was net gain.

This experience illustrates the way that cow testing makes for continually richer milk. When a man does not know how rich a cow's milk is, he is inclined to favor the cow that gives the greatest weight of milk, although it is a general tendency that the more milk is given, the less rich it is. Therefore by selecting calves from the heaviest milkers only, and keeping only heavy milkers in the herds the tendency increases to have milk that is ever becoming thinner. Testing the milk to see how fat it is works the other way. An illustration in the same Association will show this tendency.

A certain dairyman found when he joined the Association that his cows

were giving milk containing about 3.8 per cent fat. Since that time his average test has risen, by selection mainly, though partly to using a pure bred Jersey bull, to about 4.4 per cent, with the milk yield somewhat less than under the blind system of working. The less yield of milk, however, is due largely to having a greater proportion of young stock than before the weeding out process began. When these cows are older the amount of milk given will be equal to or greater than the milk given by their predecessors.

TESTING THE BULLS.—It should not be forgotten that just as valuable testing can be done on bulls as on cows by means of the test of the daughters' milk. In fact it is more valuable to know what milking qualities a bull will give to his sons and daughters than it is to know what a cow will do. She will give but one calf a year, the bull over a score.

Although a bull does not give milk, he has an equal influence with the dam in influencing the milk and butter fat yield of the heifers. If, for example, the average test of a herd of Holstein cows is 3.4 and the heifers from a new bull give as much milk as would be expected from good Holstein heifers and that milk tests on the average 3.8 or 3.6, the bull is valuable in increasing the production of butter fat. If, on the other hand, the milk flow of the heifers is no more than up to standard, but the average test drops to 3.0 or 3.1, he should be sold, for the lessened richness of the milk is not made up by any increased milk production. In other words, just as a dairyman would decide on the value of a cow by putting up the richness of her milk against the amount given, so would he judge of a bull by putting up the milk of his heifers against the richness of the milk.

In practice in cow testing associations,

or where each man tests his cows himself, the testing is always followed by the keeping of good bulls, unless the good bulls have been bought first, and no dairyman would think of keeping a fine looking bull whose daughters were unsatisfactory butter producers than he would of keeping a cow whose milk was so thin that she was unprofitable.

Likewise it has saved the life of bulls who have proved good breeders. It is one of the most unfortunate features of dairy practice that many dairymen think they must have young bulls and then when the heifers from a bull are old enough to breed they send him to the block and buy another young bull. Thus they never breed their cows to a bull whose real value is known. Testing cows has saved the life of a number of valuable bulls, even if a second bull on a small herd has had to be purchased for the heifers and even when the first bull was sold it has made another market for him than the block.

Testing thus helps the industry all along. It saves all the good cows and weeds out the poor ones. It makes the dairyman keep good bulls and makes him see that those bulls are good sires. It makes every heifer calf on the place have a high value and means that where enough testing is done in a locality only good heifers from good bulls and out of good cows are raised. It raises the standard of dairying and gives that locality a reputation that is worth something in dollars and cents for the stock sold.—D. J. W.

WHAT KIND OF ALFALFA?

To the Editor: What kind of alfalfa shall I plant, common Turkestan or what not?—DAIRYMAN, El Casco, Riverside County.

Nobody knows yet which is the best alfalfa to plant. Although the Arabian has been more favorably reported from

Southern California than from other points of the State it is not yet clear whether it is better on the whole than the common variety. The Turkestan is more highly regarded in the Sacramento and San Joaquin valleys because of its quicker winter growth, and yet it is quite doubtful whether one does not lose more in the summer than may be gained in the winter because the common alfalfa seems to be a better summer grower than the Turkestan. To make a long story short, the only safe thing to advise at the moment is to make the main sowing of the common alfalfa and put a little of each of the other kinds that may be available in so that you may note the comparative summer and winter growths of the different kinds.

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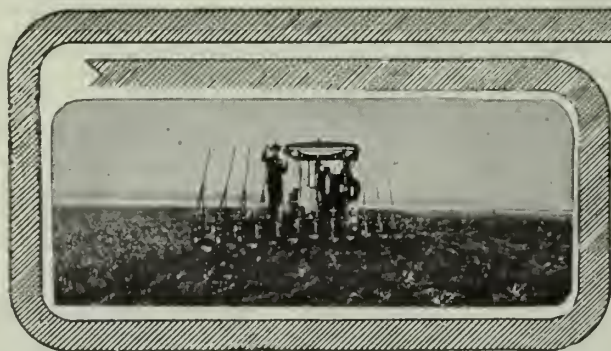


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Permanence of the Stock Business.

In his address before the Irrigation Congress recently Dr. Thomas Shaw signed for permanent profit in live stock industries, as follows:

"The reasons for the stability of the live stock business in the future are many. The include the following: (1) The increase in the number of the consumers of meat and dairy products is increasing in much faster ratio than the animals which produce these products. The same line of reasoning may be applied to wool and poultry and the products of poultry. The statistics published by the United States Department of Agriculture make this claim absolutely certain. In 1902, the number of milch cows in the United States was 16,697,000 in 1912, 20,699,000, an increase of but 4,022,000 in the ten year period. In 1902 the cattle other than milch cows numbered 44,728,000, and in 1912, 37,260,000, a decrease of 7,468,000. In 1912 the sheep of the United States numbered 62,059,000, and in 1912, 52,362,000, a decrease of 9,677,000. In 1902 the swine numbered 48,699,000, and in 1912, 65,410,000, an increase of 16,711,000."

REASONS FOR ADVANCE.—In the face of such facts, why should the prices of dairy products and meat remain stationary. Why should they not climb to the absence of a meat trust? During the ten year period referred to, the increase in the number of milch cows was a trifle over 4,000,000. During the same period the increase in population was not far from 20,000,000. In the ten year period referred to, the cattle other than milch cows, that is cattle kept for meat production became fewer by nearly 7,500,000 at the end of the period than were at the beginning, and sheep declined in numbers by about 11,500,000. True, there was increase in the number of swine of a little more than 16,500,000 but that increase in the production of meat would not nearly offset the decrease in the production of the same from cattle and sheep. Think of it. In the ten year period, the eaters of meat increased by somewhere between 15,000,000 and 20,000,000 and the production of meat decreased by many, many millions of pounds.

IRRIGATED STOCK FEEDING.—The reward to those who take up this work on intelligent lines is sure, and in no instances is it so sure as when conducted on irrigated lands. The most stable returns in agriculture are those that will come to the growers of live stock and live stock products. Covering a period of years they will also be the most remunerative. This has been the history of all countries where live stock have been numerous kept on the arable farm. The demand for these will increase rather than grow less and values will increase rather than decrease. Those who will pay the price in the labor of keeping live stock on the irrigated farm are sure of a rich reward.

WHY PERMANENCE?—Years must pass before prices for dairy products and meat will grow less. Time is called for to increase the production of cattle and sheep and to a less extent the production of swine. In a single season the market for

potatoes may be so far influenced by a large crop as to cut the price in two. In one season the yield of the whole wheat crop may be also increased as to make the margin of profit very low. So it may be with some other lines, as for instance fruits. But such a result would be impossible in the line of live stock production. Time is called to make any material change in the production of live stock or of the products of the same. Unless it is possible to so increase the production of live stock that it will more than keep pace with increase in the population, the price of meats must be still higher."

BLEEDING FOR BLACKLEG.

To the Editor: I have read several articles in your paper on blackleg, and it seems strange to me that no mention is made of an operation that is an absolute preventive, namely, bleeding in the feet. The operation is simple. Take all cattle under two years old, throw them, and with a sharp knife make an incision in front and center just above the hoof, exposing the vein, place the point of knife under the vein and sever it just above where it divides in two. Do this on all four feet and the animal is immune ever after. This is 100% effective. If the animal already has blackleg the blood from the vein will be black and clotted, but it will recover. **THOMAS MEE.**
Fernley, Nevada.

Possibly the reason that no special mention of bleeding is made is that it is not considered the preventive that it once was. Some people appear to have fair success with it, and others no success at all. The Bureau of Animal Industry states that the evidence indicates that bleeding, nerving, roweling or setoning have neither curative nor protective value and therefore should be discarded for vaccination.

FEED TROUBLE OF HORSE.

To the Editor: Kindly inform me if there is anything I can do to relieve a horse that balls up on alfalfa at the time of the first symptoms. I have been bothered considerably with this, and although I know the symptoms, I can never seem to relieve the pain before the veterinary is called. **FARMER.**
Salida.

ANSWER BY DR. E. J. CREELY.

Give the following prescription:

Fluid extract Cannabis Indica, 3 oz.

Sulphuric ether, 2 oz.

Spirits turpentine, 3 oz.

Oil peppermint, 10 drops.

Raw linseed oil, 24 oz.

Mix. Give one-half at once, balance in one hour. If not relieved give several hot-water soap-sud injections.

San Francisco Veterinary College.

ABNORMAL THIRST OF HORSE.

To the Editor: I have a horse with an abnormal desire for water. I notice that in drinking she always wants more than the others. I also notice she perspires more freely in the harness and even will sweat in the barn at night. Is there anything I can do for this?
Escalon. NEW SUBSCRIBER.

ANSWER BY DR. E. J. CREELY.

Your horse has kidney affection, probably due to feeding hay rich in alkalies. You will probably ask why the other horses do not show similar symptoms, and I will answer that the sick one is predisposed. Treatment: Change the feed and give one quart of thick flaxseed tea three times daily.

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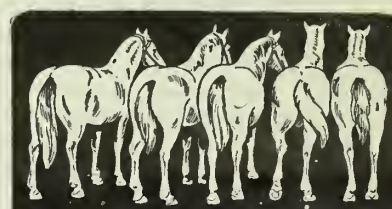
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are given the preference by 80 per cent of California stockmen because they give better results, than others do.

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THE CUTTER LABORATORY
P. O. Box 257, BERKELEY, CAL.

ASK US FOR
QUOTATIONS ON HAY
BEFORE PURCHASING
YOUR NEXT CAR.

Gotshall & Nourse
RIPON, CAL.

Hatching With Hens; Hen Incubators.

[Written for the PACIFIC RURAL PRESS by
SUSAN SWAYSGOOD.]

Most of you have seen advertisements of the "Natural Hen Incubators," but perhaps it did not occur to you that it really meant hen hatching. At least, it did not to me until I sent the natural hen man \$3.00 to see what sort of incubator it was. Then I found out that the joke was on me, for I had been using the natural incubator for years. And, what is more, I brought the idea with me across the Atlantic, for years ago I knew an old lady that raised ducks and poultry for a living and she did all her hatching with hens set in boxes along one side of a shed.

As room was precious with her she had one tier of boxes on top of another, and after feeding one row of chickens she would put them back on the nests and let out another row to feed.

Now any handy man or woman can make a natural hen incubator; the only requisites are some boards, nails and hammer. It is just as easy to make a medium size as a small one if you have the material and I should add, the room, for unless you have a place to make it where the hens can be secluded it will be of very little service.

To make you will need three boards, say twelve feet long, and fourteen inches wide. One board is the back, one the top and the other is to cut up for partitions. The front is made into small doors with one inch mesh poultry wire, and the nests set on the ground proper, which should be made clean and sanitary to begin with. Now on the ground put a half of a gunny sack covered with coal oil, on that put some nice soft nest material and some dummy eggs for your hens to sit on until they get settled.

S. C. WHITE LEGHORN BABY CHICKS.
\$9.00 per 100, \$85.00 per 1000.
S. C. WHITE LEGHORN HATCH-EGGS,
\$1.00 per 15, \$5.00 per 100.

My stock is thoroughbred and carefully selected for Standard and laying qualities.

J. R. HEINRICH POULTRY YARDS,
Arroyo Grande, Cal.,
San Luis Obispo County.

PENNANT STRAIN
BARRED and BUFF
PLYMOUTH ROCKS.

A few choice cockerels and pullets left.
Eggs for hatching after January 1st.

JAS. M. MONTGOMERY,
4360 Fleming Ave., Oakland, Cal.



Free Book

giving a full account of hatching, raising, and caring for chickens,

with details of a Complete System of Feeding.

Will be sent to you on application

COULSON CO.
Box E, Petaluma, Cal.

The Pride of Petaluma BROODER STOVE



Raise Your Chicks with 1/2 expense and one-tenth the work, without brooder or hover. No crowding, piling up, sweating or chilling. Automatic oil and heat control perfect. Get our catalogue and souvenir Free before you buy. **J. E. KRESKY, Petaluma, Calif.**

I never remove a hen to a strange nest until night, then I put her on a few hard boiled incubator eggs or some china eggs, and it is very rare that I have any trouble.

FEED YARD.—Now having made your incubator is just one-half of the job, the next thing is to make a yard to feed in. This can either be individual yards, which are best, though more trouble to make, or it can be made in one or two yards just as the person likes. The individual yards are really labor savers in the end, because food and water can be placed in them for each hen, and all the operator has to do is open up the gate in the morning, and close it after the hens have fed. Each hen goes back on her own nest and the danger of broken eggs, or two hens crowding on one nest is avoided.

When larger yards are made there is more care needed to see that the hens go back on the right nests, and that two do not crowd on one nest and leave one for the eggs to get chilled, so altogether, the small one hen yards are the best in the end.

For small hens these nests could be made of twelve inch boards, but the fourteen inch gives more room and makes it cooler and more comfortable for the hens whether large or small.

Now there are some that may wonder why the gunny sack is necessary, or the coal oil. Sacking holds oil better than most other available material and coal oil is a sure preventative of mites. Don't forget that mites have an especial fancy for setting hens, these little pests are not without a certain amount of intelligence and they know that a setting hen will often sit true while they sap the life blood from her. But coal oil protects the hen for they will not face it under any conditions. The fine nest material over the coal oil sack is to protect the eggs and the skin of the hens body, so you see all these things work together for the good of the whole.

If we are to keep even in the poultry business, in these times of high priced feed and low priced eggs we can't afford to take any chances, and setting hens without some protection from mites is taking long chances.

SETTING HENS IN BOXES.—When only one or two hens are to be set and we have no particular place where they can be put away from the flock, a drygoods box may be pressed into service. A box, say three feet long and eighteen inches wide does very well; make a nest as in the case of the incubator, in one end of the box and dust your hen well, then put her on the dummy eggs until she settles down to business, put feed and water in the other end and you will be surprised at the small amount of trouble the hen will give you. Some people shut a hen up and forget to let her off to feed for several days and then abuse the hen because she breaks an egg. Well, if they would break all the eggs it would only be justice in many cases, for it beats everything how cruel some very nice people can be, when it comes to an animal.

Setting a hen appears such a simple matter, that most people pay no attention to it other than to put some eggs under a hen and trust to luck. Well there is what is called "dutch luck" in this as in everything else, but it pays best to do a thing right and make your own luck.

HATCHING TIME.—By making a twelve foot incubator for the hens it is possible to get quite a large hatch off at one time. By testing the eggs out as one would in artificial incubating the eggs can be doubled up and a part of the hens given

For Egg Profits you should use

HIGH PROTEIN

Meat Meal Bone Meal
Blood Meal Oyster Shell
Mixed Meat and Bone
Ground Bone

Ask our dealer, or
write us, sending
his name.

PREMIER POULTRY FOODS

"Good as the best
Cheaper than the rest."

Ask us
about the
"C. E. F."
POULTRY FOUNT
It saves expense and
prevents disease.



UNITED PHOSPHATE CO.

1023-4 Story Bldg. Los Angeles, Cal.

Hopland Stock Farm

Poultry Department, Hopland, Cal.

WHITE LEGHORNS

Selected and mated to imported stock cockerels.

BABY CHICKS at \$12 per hundred.

EGGS \$6 per hundred in lots of less than 1000 eggs. Orders in excess of this, 10c per dozen above highest market price one week before shipment. 75 per cent fertility guaranteed.

5000 hens yarded—sanitary conditions perfect.

Well raised—well culled—eggs will produce layers.

PENS—TRIOS—SINGLE BIRDS OF ALL BREEDS.

HUFF ORPINGTONS—WHITE WYANDOTTES—RHODE ISLAND REDS AND BARRED PLYMOUTH ROCKS.

EGGS at \$6 per hundred and \$15 per hundred for **BABY CHICKS.**

S. C. W. Leghorn Pullets in full laying from \$7.50 to \$15 per dozen.

Eggs and stock from prize winners a matter of correspondence.

UTILITY STOCK

NO CULLS



S. C. White Leghorn CHICKS

You can't afford to take chances when buying chicks, and when you deal with us you are assured of the best.

Our stock of S. C. White Leghorns is the result of 20 years of careful and intelligent breeding.

When you get chicks from us you are certain of a stock that is vigorous and of the best laying strain in the country.

Prices and literature gladly sent free on request.

Must Hatch Incubator Company

Box 1003.

(Incorporated)

PETALUMA, CALIFORNIA

FRESH AIR ECONOMY BROODER THE UP-TO-DATE METHOD OF BROODING CHICKS



Day Scene.

The "FRESH AIR" makes the chicks happy.
The "ECONOMY" makes the poultryman happy.

No foul or burned-out air for the chicks to breathe either day or night. Impure air makes chicks weak and subject to various disorders.

No big oil bills to pay. Takes only 1 1/4 gal. of engine distillate to keep 1200 chicks warm and comfortable for 24 hours.

For further information write to

H. A. GEORGE

Petaluma, Cal.

R. F. D. 2



Don't Make a Mistake!

REMEMBER, there is but one Jubilee Incubator. Our customers say that there is but ONE Incubator, the "JUBILEE."

Our catalogue will tell you what we have to say. It's Free.

JUBILEE INCUBATOR CO., Sunnyvale, Cal.

THE THOMAS HATCHERY
Petaluma

FOR CHICKS

Which are Cheaper and Better than all the rest, because we have Better Stock and Better Equipment and because we do give you Better Service.

Write for price list and pamphlet, mailed upon request, without cost.

Single Comb White Leghorns a specialty.
CARL D. THOMAS, Proprietor,
Petaluma, Cal.

Petaluma Brooder Stove



By its use more and better chicks are raised, with 1/2 the labor, and no crowding; no chilling; no overheating. Write for a free catalogue giving full particulars about this wonderful method.

PETALUMA BROODER STOVE WORKS
PETALUMA, CALIFORNIA

POULTRY.

THE MANOR FARM RHODE ISLAND REDS have won more prizes, cups and specials during 1912 at the big important shows than all their competitors. Utility or exhibition stock and eggs; also please remember if you order S. C. White Leghorn chicks from our 180-200 egg strain you will want more. Prices on chicks, \$10 per 100; eggs, \$5 per 100. Also Barred Rocks and Minorca eggs and stock. The Manor Farm, Petaluma, Cal.

MAMMOTH BRONZE TURKEY EGGS From the largest and best pure-bred flock in the world. All turkeys carefully selected, and combine the greatest prize-winners and the best blood of the East and Middle West. They have large bone, long deep bodies, full breasts, brilliant plumage and are healthy. No inbreeding. Write for further information. Geo. A. Smith, Corcoran, Cal.

OUR GOLDEN ANTLERS AND SILVER CAMPINES took several first prizes both for the fowls and the best white eggs at San Jose, November, 1912. From Jan. 1st to Oct. 31st, 23 hens laid 4148 eggs, and are still laying. Crystal White Orpington and Antler pullets for sale. S. & B. G. HAIGH, Route 2, Box 4C, San Jose, Cal.

BUFF LEGHORNS—Booking orders for spring delivery of day-old baby chicks from two-year-old breeding stock; also eggs for hatching by setting or 100; 6000 egg incubator capacity. Indian Runner duck eggs for sale. Baby ducks hatched to order. R. M. Hempel, R. F. D. 1, Lathrop, Cal.

GEO. H. CROLEY CO., INC.—Largest and oldest poultry supply house in the West.

WESTERN HATCHERY—Fred Dye, Proprietor, successor to Dye & Fredericks. Now booking orders for day-old chicks, from heavy-laying strain White Leghorns. Prices on application. Box 2, Petaluma, Cal.

PIGEON BARGAINS—Fine young Homers, \$1.00 mated pair. Large Runt crosses, \$2.00 mated pair. Thoroughbred Carneau, \$3.00 mated pair. Discount for quantities. Sunny Slope Squab Farm, Healdsburg, Cal.

SHELLVILLE HATCHERY—Thoroughbred White Leghorn chicks shipped on approval; examine at your home before remitting; no weak ones charged for. Rural Box No. 72, Sonoma, Cal.

WHITE ORPINGTONS—100 early hatched cockerels and pullets from prize-winners. Sales subject to approval on delivery. Eggs \$5 to \$15 per 15. Jeanne A. Jackson, Oroville, Cal.

\$3.00 PER HUNDRED—Standard Thoroughbred White Leghorn eggs for hatching. Hatchable eggs from healthy hens. Heavy winter-laying stock. Andrew Emery, Kenwood, Cal.

BROWN LEGHORN ROOSTERS, chix and eggs, same in Barred Rocks, White Minorcas. W. S. Rose, Yuba City, Cal.

CHOICE BREEDING COCKERELS and day-old chicks, Barred Plymouth Rocks and White Leghorns. Fairmount Hatchery, Box 29, R. 1, Santa Cruz, Cal.

ORPINGTONS—Buff and White. Trios, \$10 up. Eggs, \$3 to \$5 a setting. Chicks, 30 cents each, incubator lots. Mrs. S. Swaysgood, R. 2, Pomona, Cal.

BLACK MINORCA COCKERELS—Page strain; a few at \$3.00. W. L. Bowland, R. D. 6, Santa Ana.

BARRED ROCKS ONLY—February special, cockerels \$2.50 each; five for \$10. Write for "Mating List." G. L. Hawley, Madera, Cal.

S. C. WHITE LEGHORNS—Heavy layers, California's greatest prize winning strain. Eggs, chicks, stock. Send for list. M. Dutterbernd, Petaluma.

PHEASANTS—Ring-necked China pheasants for sale; also eggs in season. Address T. D. Morris, Agua Caliente, Sonoma Co., Cal.

BABY CHICKS—White Leghorns and Barred Rocks, from selected stock. Also hatching eggs. Satisfaction guaranteed. N. G. Carpenter, Box 14, Sacramento.

CHICKS—White Leghorn, White Rock; high-class stock. Send for booklet of prices. Mahajo Farm, P. O. Box 597, Sacramento, Cal.

BARRED PLYMOUTH ROCKS, White Minorcas, White Holland turkeys. Stock and eggs only. L. N. Cobbledick, Oakland.

CROLEY'S POULTRY REMEDY—For colds, roup, pip, canker and diphtheria. 50c the bottle.

BUFF ORPINGTON AND COLUMBIAN WYANDOTTE; eggs and stock. Mrs. Leona Brophy, 1415 N. St., Fresno.

FOR SELECTED EGGS AND CHICKS from S. C. White Leghorns, see Hopland Stock Farm advertisement.

BABY CHICKS, from heavy layers. White Leghorns, Barred Rocks, R. I. Reds. Free folder. White Hatchery, Petaluma.

CHICKENS, DUCKS, GEESE, GUINEAS, Pea fowl. Address Wm. A. French, 545 W. Park St., Stockton, Cal.

TRAPNESTED S. C. WHITE LEGHORNS. Eggs, chicks, stock. A. R. Schroeder, Box P, San Gregorio, Cal.

FREE BOOK—"Poultry Feeding for Profit," on application to Coulson Co., Petaluma, Cal., Box P.

fresh eggs to hatch a few days later.

When the hens are due to hatch they should be closed up and kept on the nests. Of course it may be advisable in the case of a nervous hen to remove the chicks, otherwise they will do as well if left until the hatch is off.

Now here is another saving in setting a number of hens at once, the chicks can be given to part of the hens, and the rest may be put back in the yards to go on with egg producing. And when it comes to quality, I hope no one will dispute the fact that hen hatched chicks are better, stronger, and that they grow faster if provided for right, than machine hatched chicks.

But here is another strange paradox, the very people who will care for a scrubby lot of incubator chicks and spend hours caring for and cleaning out, will totally neglect a good batch of hen hatched chicks and throw all responsibility on poor old biddy. They won't even give her feed for her brood, and she has to drag the chicks around from early morning till late at night hustling a living for her family.

CLEANLINESS.—Now if given half a chance a hen will be clean, but if kept confined in a close pen with no place to exercise the pen soon becomes filthy and lice breed very fast; then the chicks get them and commence to die. But the hen is not to blame, because if given her liberty she will do her part towards keeping clean, but she needs help in the shape of a dusting about once in two weeks.

There is a right way and a wrong way to do everything, and the wrong way is almost always the hard way, but human nature is so built that we mistake the hard for the easy, and we are always on the look out for easy street. The poultry business appears to the general run of people so easy, that it is a sort of mirage to them when they get into it they find it is not what it appeared to be.

And yet if the work is systemized, as other work is, there is nothing hard or laborious about it. It is only the slipshod, hap-hazard methods of doing things that make it hard and these are the methods that eat up the profits. It is a business of small details, like the setting of a hen, all the little things must be attended to if we want to get a good hatch, and at no time during the three weeks the hen or machine is incubating must the owner be off the job. The nest, the hen and the eggs are one part of the deal, the man or woman who is overlooking the job is the other and in order that the eggs develop into chicks both hen and man must be Johnny on the spot every bit of the time.

DRY FARMERS CREDIT GOOD.

It is a pretty good commentary on the integrity of the dry farmers, says the Denver Field and Farm, to announce that sixty per cent of the loans made to them, most of which was expended for seed, has been paid back to the Commerce Investment Company of this city. This concern is an adjunct of the Denver Chamber of Commerce, organized two years ago for the purpose of assisting needy farmers. More than \$10,000 was loaned without running to Wall street for it and not more than ten per cent is now outstanding. Several times as much money was loaned to the farmers by the banks of Denver and vicinity and this

WHITE LEGHORNS—Chicks, eggs, cockerels. Fine stock. Reasonable. O. B. Morris, Lodi, Cal.

BRONZE Turkeys and Eggs. Ed Hart, Clement, Cal. Large size, good plumage, early maturity.

TWIN OAKS FARM—W. H. Bissell, Proprietor, Livermore, Cal.—Buff, White Orpington.

CROLEY'S POULTRY CATHARTIC—Cleanses the fowls, revives their appetites. 25c the box.



Night Scene Showing 1700 Chicks, 10 Days Old about an Arenberg Patent Stove.

This picture is from an actual photograph, and the stove is the original and only perfect oil stove made. This stove has REVOLUTIONIZED the rearing of BABY CHICKS. It is

Arenberg's Patent Brooder Stove

and has proven to be the most successful brooding and heating stove on the market. Awarded Gold Medal for most meritorious California invention at California State Fair. Perfectly safe, simple, easy to manage. Burns Stove Distillate, Engine Distillate, Coal Oil, and, in an emergency, can burn Wood or Coal. For full particulars write

H. F. ARENBERG, Petaluma, Cal.

Live Agents wanted in every state and county in the United States.

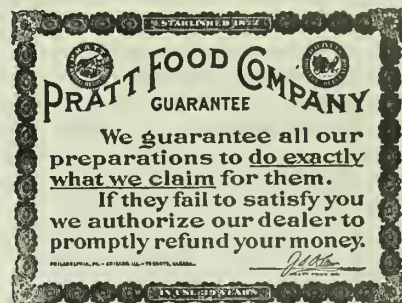
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The only

POULTRY REGULATOR

Hopland Stock Farm awarded many prizes at Petaluma Show. They understand the value of Pratt's Poultry Regulator. Send 25 cents for a package and our Poultry Book. If your dealer does not keep it, write

C. W. COBURN & CO., Agents, 320 Market Street, San Francisco



We guarantee all our preparations to do exactly what we claim for them.

If they fail to satisfy you we authorize our dealer to promptly refund your money.

money has also been paid back except for a small proportion. The credit of eastern Colorado farmers with the banks was never so good as at present on account of the crops produced last year. The thing to do now is to arrange a credit system by which the dry farmers can stock up with dairy cows and poultry so as to get away from the uncertainties of grain growing, which will never make good as a steady diet.

HEATING OF KAFIR CORN.

We do not have much trouble in this line, for three reasons, probably. Our seed is ripened dry, the air is dry during the fall after storing and California does very little bulk storage in bins, etc., but stores all grains in sacks. Still it is desirable to know about the trouble from heating.

Mr. Steinel, the Colorado editor of the Southwest Trail, has been putting in several years studying this peculiar crop and gives us the picture on this page to show how an average harvest comes out when the season is right. Some precaution must be observed in keeping the threshed grain over winter. When the germinating season comes in the spring there is a strong tendency in kafir corn as well as milo to start the growing process sufficiently to develop heat enough to injure the grain. Kafir corn harvested in a dry fall thoroughly cured before being threshed and kept apparently bone dry through the winter in a dry and well protected bin will often, in warm, wet weather in the spring, become so hot that one can hardly bear his hand in it. This heating often occurs in a dry bin where there is no opportunity for extra moisture to reach the grain, except that contained in the air in the building. Thoroughly dried kafir and milo shipped to the East from our dry country in the spring will often become very hot in the car when it reaches a point where the weather is damp and warm. When kafir begins to heat, it must be moved at once and air allowed to play around the grains. This will stop the heating for several days and when the grain begins to heat again the aerating process must be repeated. In small bins the heating can be kept in check by shoveling the grain over as often as it begins to get warm. It is the custom in elevators to take kafir corn when it begins to heat and move it from one bin to another, the grain getting sufficient air in this movement to keep it cool for some time. If the tendency to heat is very strong, the kafir corn is

JUST ISSUED

CALIFORNIA FRUITS

AND HOW TO GROW THEM

SIXTH EDITION
REVISED TO DATE

A Manual of Methods which have yielded greatest success; with lists of varieties best adapted to the different sections of the State.

By Edward J. Wickson, A. M.

Dean and Professor of Agriculture in the College of Agriculture of the University of California; Director and Horticulturist of the University Experiment Station; Author of "California Vegetables in Garden and Field"; Editor PACIFIC RURAL PRESS; member National Council Horticulture, etc.

The book describes the best methods and appliances in use by the foremost and most extensive fruit growing industry in the world.

Size of page, 6x9 1/4, 600 pages, bound in cloth and fully illustrated.

PRICE, CARRIAGE PREPAID, \$3 THE COPY.

The Pacific Rural Press

PUBLISHERS

320 MARKET ST., SAN FRANCISCO.

To Exterminate

GROUND SQUIRRELS, GOPHERS, also BORERS, ROOT APHIS, etc., on Fruit Trees

CARBON BISULPHIDE

Is the only effective remedy.

For sale by dealers and manufacturers. WHEELER, REYNOLDS & STAUFFER, Office: 624 California St., San Francisco.

passed through a blast of cold air as it is changed from one bin to another.

The Farmers' Short Courses of the University of Nevada will be held during the eleven days from February 18 to 28. They will be composed of a series of individual lectures upon various subjects, rather than courses with several lectures upon one subject.

The J. A. Hannah ranch, south and west of Strathmore, Tulare county, consisting of 2740 acres of tillable land, has been sold for \$100 per acre to J. F. Weatherby, a Los Angeles capitalist.

GOSSIP ABOUT ALFALFA MILLING.

The Denver Field and Farm has surely gathered together about all the gossip there is on this subject. Read it:

The alfalfa millers are trying to increase interest in the growth of alfalfa and the manufacture of alfalfa meal. This macerating business in Colorado, Nebraska, Missouri, Oklahoma and Kansas has grown until some of these establishments rank in size to the largest flouring mills in the United States. In all sections where alfalfa meal is being used it continues to grow in demand, which indicates that it gives satisfaction. When properly milled it improves the meal by increasing the quantity of available digestible nutrients. Feeders who study their forage have come to recognize the importance of feeding alfalfa meal and alfalfa mixed feeds over hay. They would no more think of feeding alfalfa hay without grinding it than they would corn without cracking it, or barley without rolling. Feeders of stock realize that in order to improve their breeds they must give the same careful attention to the selection of feeds as they do to the choice of breeds.

WIDENS THE HAY TRADE.—An alfalfa mill furnishes farmers a wide outlet for their crops. Alfalfa hay is bulky, and for this reason can only be shipped a comparatively short distance, limiting the market, although we have sent it as far as New England. When put into meal and packed into heavy jute sacks, it can be easily handled and stored in small space, hauled long distances, without waste, and railroads can transport twice as much meal as baled hay with the same equipment. Railroads recognize this advantage and everywhere have made a cheaper rate on meal than on hay. Thus about 40% of the money paid as freight to the railroad company is saved to the community. The markets of the Atlantic and Pacific seaboards are open to our alfalfa meal, while the high freight rate on hay precludes heavy shipments to such distances. This brings new money in from afar and we have always observed that this is the best kind of revenue to receive, for it is borrowing from distant Paul to pay Peter at home. Besides this, it gives the farmer a wider market for the wheat and barley that is used in the alfalfa mixed feed. While alfalfa was always profitable before the advent of the alfalfa mill, it never had as satisfactory markets.

The extent of the meal business may be judged by the fact that there are 68 mills, costing about \$250,000 in these four States, and sixteen are in Colorado.

RATIONS BALANCED IN THE MILL.—Alfalfa meal is to animals what vegetables are to persons. If a workingman should eat only meat for a week, the chances are that his digestive system would not be in the best of condition. It is the same with animals. The alfalfa meal is mixed with corn, wheat and oats to serve the same purpose that vegetables do in our diet own diet, making a balanced ration. The meal is made from the entire alfalfa plant which is cut and cured just as it would be for hay, then it is taken to the mill and ground. The hay is loaded in wagons and driven into long mill sheds. The hay is thrown on a conveyor and is carried to the grinder, which breaks the hay into pieces about an eighth of an inch long. A suction fan draws the ground product away from the cylinder through a tin tube into sacks holding 100 pounds of the meal. Then it is shipped to cities where there are mixers. There the meal is mixed with grain and sacked for sale to the consumer.

PORTABLE MILLS.—The latest proposition in this manner of utilizing our

greatest forage crop is the individual or portable mills that are now manufactured and put out in great numbers for the practical use of ranchmen who desire to feed the ground product on their own places. There has been a perfect furore in the acquirement of these little plants during the last year or two and the best ranches where heavy feeding is done are putting them in as fast as they can be turned out by the factories. The most of the manufacturing of these machines, if in fact not all of it, is done in Colorado which shows how we are going ahead right along in one way or another. Inventive geniuses are turning out these machines so that they will not only work up the alfalfa, but will grind and mix all kinds of grain in any desired ratio so that the product coming out of the spout is a balanced ration itself. Some of these machines even go so far as to use the waste molasses from the sugar mills, with the grinding and mixing all done at one process which makes them a very economic proposition. The man who spends a few hundred dollars for one of these outfits will save the cost of it in a few weeks.

This surely beats false teeth for cows!

SIMPLE DURABLE WHITEWASH.

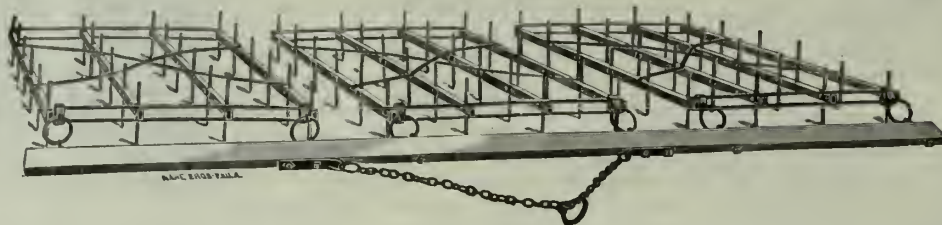
To the Editor: Could you give me a receipt for a durable whitewash which can be prepared simply and in large quantities? Several buildings on the ranch will soon have to be whitewashed, and elaborate formulas like the Government formula are impracticable for use here on a large scale. The whitewash will be applied with a spray pump. RANCHER. Fresno.

The following receipt is recommended for such conditions:

To 25 lbs. of lime, whole, slacking with six gallons of water, add 6 lbs. of common salt and 1½ lbs. of brown sugar. Stir and mix well and allow to cool. When cool stir in 1 oz. of ultramarine blue. Then add 2 gals. of water, and sprinkle and stir in 2 lbs. of Portland cement. If two coats are to be applied, add one more gallon of water. Strain for work on smooth surface. This receipt was furnished by the Henry Cowell Cement & Lime Company.

Blake, Moffitt & Towne
Dealers in 37 FIRST STREET, SAN FRANCISCO
Blake, Moffitt & Towne, Los Angeles
Blake, McFall & Co., Portland, Ore

The Benicia Angle Steel Harrow



The frames are made of two pieces of angle or L-steel of high carbon, which are bolted together, forming a square steel tube, combining the greatest possible strength with the least weight. These bars are then formed into sections with twenty-four teeth each, which are held in position by steel braces, making it impossible for the harrow to get out of shape.

The teeth, which are of a peculiar pattern and of high-grade steel, are made especially to order for us. They are attached to the frame very securely, being passed through square holes and fastened in position by means of bolts, which make them adjustable and enable the operator to lower them at will, keeping them perfectly even at the point and utilizing their entire length, without weakening them with threads, as is the case with many other steel harrows.

The chain is used only on the 3, 4, 5 and 6 section bar. All harrows furnished with teeth ½ x ⅝ inch. Also drag bars with two or more sections.

BENICIA IRON WORKS, Manufacturers

Factory: Benicia, Cal.

451 Brannan St., San Francisco, Cal.



CLEAN POWER

"Pacific Service" is the cleanest power in the world. There's no dirt connected with it. A twitch of a switch starts it going—another twitch stops it.

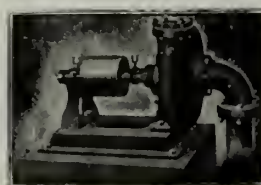
"Pacific Service" has greatly simplified and reduced work in home, factory and on the farm. It is a twentieth century economical convenience that is **there** when you want it, and it always does what's demanded of it.

Let us give full information.

"Pacific Service" is "Perfect Service"

PACIFIC GAS AND ELECTRIC COMPANY

445 SUTTER STREET
San Francisco, Cal.



PIONEER CENTRIFUGAL PUMPS

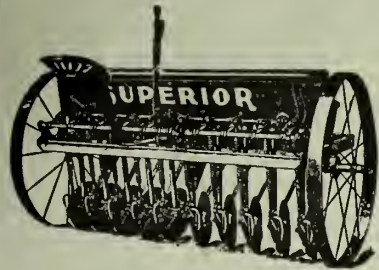
Improved machinery and methods enable us to sell you this pump for less than you can buy any other make.

Our retail prices are less than our competitors' wholesale prices.

We guarantee our pumps the equal in quality and capacity of any. Live agents wanted. Write for circular and prices.

PEERLESS IRON WORKS, Sacramento, Cal.
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Send for Circular on Special Alfalfa Drill. Seed costs money—a Drill will save its own cost.

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has been on the market nearly 30 years and the sales get bigger every year.

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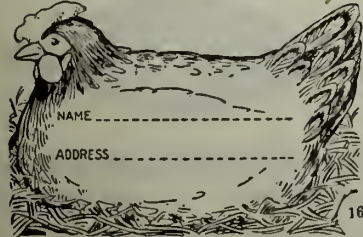
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show you how the poultrymen on our Little Farms in the fertile Sacramento Valley, California are making their dimes grow into dollars because they cannot supply the market—the demand is increasing faster than the supply. No winter months to contend with—chickens run out the year 'round. Come where the profits are being made. We allow you ten years to pay for your land.

The finest alfalfa land in California.

Kuhn Irrigated Land Company
412 Market St., San Francisco



Utah Scheme to Protect the Settlers.

Commenting on the operations of some "promoters", George A. Snow suggests through the Utah Farmer, the following remedy for the protection of the homeseeker:

I suggest that all irrigation projects, whether Carey Act or privately owned, be given such measure of firm, but thoroughly just and practical State supervision as will serve to prevent the launching of an irrigation project until it shall first have been rigidly investigated and approved by properly constituted and competent officials of the State. Thus will the project carry the stamp of approval of the State.

The question may well be asked, why should the State thus interfere in the business of irrigation and not with some other lines of business? My answer is that the State for many years has been making a consistent effort to exercise a measure of control over some lines of business, particularly so with respect to the issuance of stocks and bonds, but aside from this, I submit that no phase of our industrial life as applied to the arid States is of such superlative importance as their agricultural development, and I know of no important industry which so much concerns the public that is permitted to be handled so loosely, nor in which such prolific opportunity is afforded to deal unfairly with the public. It therefore occurs to me as being the plain duty of the State to go to any reasonable extreme to properly surround this industry with the much needed safeguards, to the end that that the public shall be fairly protected, at the same time the interest of the legitimate builder to be advanced.

The settler from the East, without previous experience in irrigation, is presumed to have knowledge of the law of the several States, and be able to discriminate as between new projects, but as a matter of fact, as a rule, he neither has knowledge of the law nor the capacity to judge the several vital questions involved in irrigation development, and I submit that it is unfair that he be obliged to accept the judgment or statements of the colonization agent who may or may not be inclined to take advantage.

I favor the complete reorganization of the present system of State land boards. I thus suggest for the reason that those comprising State land boards as now organized, are as a rule men engaged in other lines of business and not especially trained for the service; therefore the land and irrigation business, which means so much to the State, is in great measure made a side issue.

I suggest having one commissioner on land, one commissioner on irrigation, one commissioner on emigration and one commissioner on finance. These I would constitute the State Board of Land Commissioners, with the Governor as ex-officio chairman. These commissioners should be appointed by the Governor, and be subject to confirmation by both houses of the Legislature. I would urge that this commission be completely divorced from politics, that each commissioner be appointed with special reference to fitness for his particular line of service, that they be men of high standing in whom the public has full confidence, and that each commissioner assume full responsibility for the work entrusted to his department, and furthermore, that they be constantly on the job.

To the commissioner on land I would entrust the handling and disposing of all land in which the State is interested. He should be an agronomist with a thorough knowledge of soils and land values. He should be required to inspect every sec-

tion of land embraced in every proposed irrigation project. He should have the soil analyzed as to mineral and plant food content and otherwise pass upon the fitness of the land for sale to the public, and make report thereon for the information of the public. He should alone determine and prescribe the particular land which the builder of the project shall sell or have the right to sell water for.

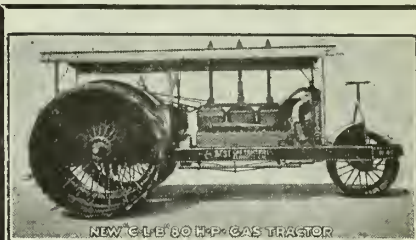
The commissioner on irrigation should be a thorough-going business man, with practical knowledge of irrigation development. There should be placed at his disposal a sufficiently generous fund to employ qualified engineers to pass judgment upon the character of construction, size of canals, adequacy of water supply, etc., of every proposed project. He should be given complete charge of water appropriations. He should prohibit the present haphazard and indefinite methods prevailing in most arid States of appropriating water without regard to whether the water is actually available and permit the applicant to merely initiate a preferential right until this commissioner has thoroughly inspected the project and approved it. The applicant should then be required to give the State a surety bond in such amount as should afford reasonable guarantee that the project will be built. This should serve to prevent water speculators from exacting unearned profits from those engaged in the business in a legitimate way by tying up at small expense water that belongs to the public. This regulation, however, should be sufficiently elastic as not to prevent individual farmers from making limited and bona fide water appropriations. The fund made available for the use of this commissioner should be sufficient to enable him to make hydrographic surveys where necessary in order that the acreage already under cultivation may be ascertained, also the quantity of water that should attach thereto. This will determine the surplus, if any, to be made available for a new project. It is important that the State should make generous appropriations in conjunction with our Government for the purpose of determining the flow of all streams and this work should be placed under the charge of the the irrigation commissioner, and no stream should be over appropriated. If this plan of regulation is followed, a water permit or certificate issued by the irrigation commissioner would then mean to the holder or one to whom he might exhibit it, that he was actually entitled to the use of the quantity of water named in the permit and proper importance would then attach to it. Under present regulations a stream may be over appropriated any number of times, or so long as the required fee is paid to the State, and a water permit means little or nothing in point of value. Finally the signature of approval of the irrigation commissioner should be required on every water contract under a new project before the contract shall become binding.

The commissioner of emigration should devote his entire time to giving publicity to such land as the State desires to sell, and that ought to be sold, and direct his efforts to securing desirable colonists for the several Carey Act and privately owned projects. All publicity work should be done without discrimination as between projects, except to indicate the crops that can best be grown on each. It should be compulsory that colonization companies or builders of projects having land and water for sale submit their advertising matter to and obtain the approval of this commissioner before allowing it to be distributed.

The Commissioner on Finance should

have charge of all State finances bearing upon land, water and irrigation operations. Should an individual or company desire to sell stock or issue bonds on an irrigation project, the signed approval of this commissioner should be first obtained.

These commissioners should meet as a board at frequent intervals when progress reports should be submitted by each commissioner covering the work of his department, and board as such should have knowledge of and pass on the whole. With such an organization as this the public would at once know with whom to confer on any branch of the work and whom to criticize and hold responsible. The judgment of the board or any commissioner should be subject to review by a court of competent jurisdiction.



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with high and wide wheels, will plow, harrow, seed or harvest when your ground is in proper condition. Mushing a crop in is against proven methods of today. **THE NEW C. L. B. PERFECTED, ALL-STEEL GAS TRACTOR IS BACKED BY A YEAR'S GUARANTEE.** A home company—a California product. Sold strictly on the approval basis.

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Every foot guaranteed. Save one-quarter on your pipe by ordering from us. Write for prices.

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The following list of farm books are kept in stock and will be mailed on receipt of prices quoted:

Farm Development, Hays.....	2.00
Manual of Laws.....	2.25
Farm Buildings.....	2.20
Breeding Farm Animals, Marshall..	1.60
Hog Book, Dawson.....	1.60
The Dairy Farm, Gurler.....	1.10
Greenhouse Management, Taft.....	1.50
Mushroom Culture, Falconer.....	1.00
The Study of Corn, Shoesmith.....	.50
The Hop, Myrick.....	1.50
Meadows and Pastures, Wing.....	1.50
Trees and California, Jepson.....	2.50
Asparagus Culture, Hexamer.....	.50
New Onion Culture, Greiner.....	.50
American Cattle Doctor, Dadd.....	1.00
Home Pork Making, Fulton.....	.50
Farm Gas Engines, Brate.....	1.10
The Book of Alfalfa, Coburn.....	\$2.00
Swine in America, Coburn.....	2.50
Feeds and Feeding, Henry.....	2.25

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PACIFIC RURAL PRESS,
420 Market St., San Francisco.

AGRICULTURAL REVIEW.

Fruit Notes.

The probability that much Florida fruit will get into California this year seems scant. A carload imported by a San Francisco firm was condemned by the horticultural inspectors on account of carrying serious insect pests and was forwarded to the Northwest, where these pests would do no injury.

The Agricultural Experiment Station, under Dr. H. J. Webber, who will be the head of the work at Riverside, is planning some detailed investigations upon the subject of frost injury which will cover a period of six months or so. It will deal with the nature of frost injury, methods of handling frozen fruit, treatment of injured trees, etc. The effect of the frost on the fruit is better known now than earlier, but there is a hesitancy in shipping owing to doubt as to how the fruit will be received in the markets, and as to what will pass the local and national health authorities. The Federal Pure Food Board is endeavoring to make as definite rules as possible to govern the quality of fruit, but for various reasons cannot inspect the fruit at the point of shipment alone.

The Placer County Growers' Canning Association is making plans for the erection of a cannery at Lincoln, 10 acres having been secured for a site.

The annual meeting of the Arbuckle-College City Almond Growers' Association has been held and officers elected. The Association is growing rapidly, and the members are greatly pleased with the success of the Association and the success of the Almond Growers' Exchange, of which it is a part.

Farmers' Committee Appointed.

The committee of fruit-growers which the State Commissioner of Horticulture was authorized to appoint at the Fruit Growers' Convention in Fresno to uphold the rights of farmers and fruit-growers in compulsory workmen's compensation legislation, has been appointed by Commissioner A. J. Cook. It consists of A. B. Humphreys of Mayhews, R. G. Williams of Lodi, and Edward Berwick of Monterey. From all parts of the State vigorous opposition is coming to the application of compulsory compensation along the proposed lines to agricultural occupations. The whole proposition was meant to apply to conditions differing radically from agricultural occupations in every essential particular that relates to the evils that the law was meant to overcome, and when the legislature meets again next month the fundamental weakness of the proposed legislation in regard to agricultural occupations will be impressed upon the members of the legislature.

A letter from Mr. Williams informs us that Mr. Pillsbury, who is sponsor for the proposed legislation, will meet the San Joaquin County Grape Growers' Protective League Saturday to discuss the measure. Mr. Williams further states that he does not know a single farmer who favors the law. The Committee of Labor and Capital, to whom the bill has been referred, are about equally divided on it, and a public hearing will probably be had in which the farmers and fruit-growers can put forward their side of the matter.

Land Deals.

Near Corning, Tehama county, 5131 acres of land has been purchased for subdivision purposes by M. F. Caldwell and the Brainard Brothers.

A tract of 3250 acres of delta land west of Lodi has been sold for \$400,000 to

Henry Riley and J. P. Aitken, Alaska mining men. The tract is known as the canal ranch. It is reclaimed and 2500 acres are in barley, the rest in beans.

The E. A. Noyes ranch, near West Butte, Sutter county, of 5000 acres, is said to have been sold to a Seattle capitalist for \$150,000 or thereabouts. It is composed of hill pasture, fruit and grain land and overflowed land.

The San Joaquin Light & Power Co. is active in constructing power-lines through the Fairmead colony, Madera county, and has contracted for a large amount of power. The people of Fairmead have taken steps to have a branch of the county public library established there.

Stockyards Receipts.

The receipts for the week ending February 6 at the Portland Stockyards were: Cattle, 824; calves, 11; hogs, 3552; sheep, 5622; horses, 106. The demand for cattle slackened during the week slightly, owing to a poorer quality of stuff coming in. Hogs and sheep were quite strong. Steers went at from \$7.50 to \$7.75, and prime hogs at from \$7.50 to \$7.60. Lamb sales were made at \$7.25, yearlings at \$6.25 to \$6.35, and wethers at \$6 to \$6.15. Receipts of live stock in the Union Stockyards this year are much less than last. Up to February 6 the receipts for 1913 were less than those to the same date 1912, as follows: Cattle, 8000; calves, 557; hogs, 38,388; sheep, 5416.

Progress at Tehachapi.

Things are going along very nicely in the Tehachapi country, Kern county. A correspondent writes: "Tehachapi is a very fertile valley, with about 20,000 acres of good tillable land, 1600 acres of which are now planted to apples, pears, currants, apricots and peaches. Apples and pears, though, are the leaders, there being now about 1100 acres of apples and 200 of pears, Bartlett's mostly. The 10 acres of currants now planted bear finely, and 90 acres more will be planted this year.

"There are a few individual owners occupying their land, but the greater portion of the land now under cultivation is being farmed by the Tehachapi Fruit & Land Co. for a percentage of the profits. The company sells the land and then under some arrangement cares for it for a number of years. The country has a great future."

Field Crops.

The asparagus season is close at hand, and everything is prepared for a big Eastern shipment and a big canning season. The prospects are all good for a very profitable year.

The planting of sugar beets in Orange county will be very large this year, as 35,000 acres or so will be put in.

A heavy crop of grain is promised on the heavy lands of the upper Sacramento. In the rest of the State, with few exceptions, the rainfall has been too scant for comfort, though it might be worse. On the adobe lands near the river a great deal of rice will go in this season.

D. C. Kratz, of Upham, Butte county, is going to plant a good-sized acreage to alfalfa, to be grown without irrigation. Fair success will mean better returns from the land than the old way of farming has given.

E. G. Lewis in California.

E. G. Lewis, formerly of St. Louis, has secured 23,000 acres near Pescadero, Santa Cruz county, to be sold under a system similar to that which he used to float University City and a number of

other big business ventures which went into the hands of receivers during the last couple of years. There are to be no taxes in the new colony, and several other wonderful things are to be accomplished.

Fine Stock for California.

Some extra fine live stock is being secured for California stockmen, according to a letter just received by W. M. Caruthers, our live stock correspondent, who has been visiting Eastern stock centers for the last six weeks or so. Mr. Caruthers writes in part: "I have secured for the Stanford University a very good two-year-old bull sired by the 'King of the Pontiacs.' The A. R. O. cows which I have purchased for Mr. Harrold are exceptionally fine and have great records, and no doubt will prove a success in California; in fact, many of them will freshen at the right time to come into the test at the Panama-Pacific Exposition in 1915, and, if they do, they will be heard from. I also purchased 20 Shropshire ewes to take back with me. Among these 20 ewes is the winning pen of four head at the last International, and every time that these ewes were shown all over this country they were winners. Ten of them were sired by the Grand Champion ram at the International, and the other ten by one of the very best imported rams in this country. They are a fine lot, and no doubt will be heard from in the show rings on the Pacific Coast. Although I have not written anything for your paper, I have found a good many subjects which will be interesting to our readers after I return. The most particular one that I think of is regarding the care of tuberculosis practiced by the Stevens Bros. of Syracuse, N. Y. It is the very best mode of caring for this disease that I know of."

Vina Holsteins Prospering.

The purebred herd of Holsteins at the Stanford University ranch at Vina, Tehama county, is prospering nicely. The ranch manager, W. G. Stimmel, was a caller this week and informs us that a new bull has been put at the head of the herd. He is sired by Johanna's Lad and is therefore a grandson of Sarcastic Lad and Colantha 4th's Johanna. His dam was a noted cow of Pontiac blood. The bull was purchased several years ago with a number of other Holsteins and is now four years old. His good breeding is shown in his quality. There are also five other first-class bulls used for breeding, among whom are Canary Johanna Victoria, grand champion at the 1911 State Fair, a son of "The King of the Pontiacs," now on his way out from the East, and three other bulls.

Six cows have just been given an official test and put in the Advanced Registry of the Holstein-Friesian Association. This is the first time that any cows were given such a test. All were taken from the ordinary milking herd and given no preparation for it. Three of them made over 20 pounds of butter in the seven days.

The dairy herd has been given stock beets this winter in addition to alfalfa hay, and the results have been excellent, the condition of the cows being greatly helped as well as the milk yield being increased. The Golden Tankards have been found better than mangels, though not as good producers.

Creameries Busy.

The Danish creamery of Fresno has held its annual meeting and elected officers. The creamery manufactured 1,514,773 pounds of butter during the year and took in \$525,377.46, or \$100,000 more than in 1911. The average price paid stockholders was 37 cents, and non-stockholders 36 cents. There ought to be money in dairying at that rate. There were no

losses during the year. The creamery is handling cream from 715 patrons and is a co-operative concern.

At Los Molinos, Tehama county, 1500 cows. It is stated, are being milked, and a meeting was recently held to plan for the erection of a co-operative creamery. Nearly all of this has come during the year and a big increase in dairying will follow this season. The Western Meat Co. is installing equipment to test cream at Santa Rosa that was formerly tested on receipt at San Francisco. Swift & Co. are enlarging the capacity of their creamery at Hardwick, Kings county.

Upper Sacramento News.

A hog weighing 661 pounds, live weight, and 494 pounds dressed, was recently slaughtered in Chico, according to local

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"	" 76.....	1.15	4.50
"	" 94.....	1.25	5.00
"	" 114.....	1.00	4.00
"	" 116.....	1.00	4.00
"	" 79.....	1.15	4.50
"	" 71.....	1.00	4.00
"	" 89.....	1.25	5.00
"	" 121.....	1.25	5.00
"	" 108.....	1.00	4.00
"	" 93.....	1.15	4.50
"	" 88.....	1.00	4.00
"	" 75.....	1.00	4.00
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Rose Ettersburg	1.15	4.50

Send for catalogue describing all the above varieties.

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Nonpareil, Ne Plus Ultra, I.X.L., Drakes Seedlings, Texas Prolific, Hungarian, Silvers, Imperial, Goldendrop, Bartlett's, Cherries, Walnuts, and Figs.

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The Silva-Bergtholdt Co.
P. O. BOX 177 NEWCASTLE, CAL.

upers. It was ten months old and was raised near the city. Later in the same year, the story goes, a steer was slaughtered at the same place weighing 1950 pounds live and 1350 pounds dressed. Gains have been sufficient to make the grass excellent in the upper Sacramento, and the stock are all in fine shape.

The sheep in the upper Sacramento are reported to be almost free from scabies. The quarantine has been lifted to the north and east, and in a year it is probable that it will be lifted in the valley also, if not over almost all of the State.

The Secretary of Agriculture has authorized the grazing of 9500 head of cattle and horses, 450 head of hogs, and 19,000 head of sheep and goats in the Trinity National Forest the coming year.

Independent Wineries Selling.

Several of the big independent wineries have been sold to the California Wine Association. The Lodi Co-operative Winery, has been sold to George West & Son, affiliated with the Wine Association, for \$283,000. A large amount of wine on hand is included in the price. This gives West & Son control of the wine industry in San Joaquin county. The vineyardists of the county are said to have been offered a contract for wine grapes at \$10 per ton, with \$12 per ton for the finer varieties, and \$7.50 for table grapes. In Fresno county the Las Palmas and Tarpey wineries have also been purchased by the Association, which they were built to fight the low prices for grapes and wine last year making further operation too unprofitable.

In the raisin business the markets remain dull. The Associated Raisin Co. has completed an investigation which shows that there is about 19,200 tons of raisins in the growers' hands yet, and about 6000 tons in the hands of packers. Contracts are coming in to the company with renewed rapidity. About 2100 contracts have been signed. Among the latest growers to contract their crops are the Helm Company, Frank Helm and L. L. Archibald. The first annual election of directors of the company will be held shortly.

Fruit on Dredged Land.

Ten acres of dredged land are to be planted to prunes next to the Will and Gable orchard, near Oroville, by George Gable. It was once thought that this land, after being turned upside down, was worthless agriculturally, but some will be leveled and planted each year.

About 150,000 fruit trees and berry plants have come in the Chico and Durham district of Butte county to be planted this year. Enough more will shortly arrive to make a total of over 2000 acres of new orchard this season.

Welcome for Poultrymen.

In every particular arrangements are being made for a fine reception for visitors and exhibitors at the Panama-Pacific International Exposition. One of the latest bits of work begun has been the planning for a fitting yard for poultry exhibitors who ship their fowls from a distance. The California Federation of Poultry Clubs will have this matter in charge. They will establish a fitting yard with all possible conveniences, so that fowls shipped can be put in the best possible condition for exhibition at a minimum cost. The lessened cost to the shipper will be accompanied by much less worry and trouble than would be necessary if the shipper had to find his own accommodations.

Poultry Meetings.

The Santa Clara County Poultry Association held a meeting recently to con-

sider the advisability of getting together with the Petaluma poultrymen to form a large organization which would improve the market conditions for poultry and eggs. J. M. Murphy, of Petaluma, was the principal speaker. The Arlington Poultry Association, at its last meeting, was also seriously considering co-operative marketing of eggs. The Association may consolidate with the Riverside Association.

In San Francisco last Saturday the members of the San Francisco Wholesale Dairy Produce Exchange listened to an address upon the relation of the dealer to the egg market. This address will be treated quite fully in all probability in these columns next week.

Fine Clydesdales Here.

Some fine Clydesdale stallions have just been received by John Troup of Goleta, Santa Barbara county. Mr. Troup writes: I have just got in some splendid specimens of Clydesdale stallions from Scotland, sons of such celebrated sires as Revelent and Hiawatha, two of the best breeding stallions in Europe. I have also some young, clean, well-bred Percheron stallions for sale."

EXPERIENCE WITH CASABAS.

To the Editor: I understand that you are preparing to rewrite your work on vegetables, and I thought possibly you would be interested in my experience with casabas last season.

As you know, last season was rather dry, and I found that the casabas stood the drouth very much better than muskmelons and cantaloupes.

There were about seven inches of rain, and it was scattered out well. I planted watermelons, muskmelons, cantaloupes, cucumbers and casabas in the very light sandy soil so plentiful in this vicinity. They received no irrigation, only cultivation, and I got a fair crop of watermelons, very fine in quality, and some good cucumbers, and quite a few very good casabas. Some very fine ones ripened rather early and would not keep. But some very good ones kept till December.

Muskmelons and cantaloupes planted at the same time in adjoining rows, and under the same treatment, made nothing of value. From four or five kinds I got nothing.

I planted about four different casabas, but I was away when my family gathered them, so do not know which did best, but I think the one giving the finest fruit was a hybrid between a casaba and a muskmelon, sold by a Los Angeles firm of seedsmen. It was very fine, but a poor keeper.

Trusting that this may be of interest to you, I remain, W. O. RETHERFORD, Oakley.

[We are very glad to have such notes of experience concerning all vegetables. They help greatly in making up local values and enable us to help others by specific statements.—EDITOR.]

The reorganization of the Lima Bean Growers' Association has been completed. The Association is now a purely co-operative concern. It has no capital stock, as its business is not carried on for profit, but all profits or losses realized or suffered are distributed to or borne by the persons delivering their beans to the Association for marketing. The principal place of business is to be Oxnard, as before. The eleven directors to serve for the first year are Charles Donlon, J. D. McGrath of Oxnard, T. G. Gabbert and D. F. Sheldon of Ventura, F. A. Snyder of Somis, George C. Power and Roger G. Edwards of Saticoy, A. Camarillo and J. F. Lewis of Camarillo, Jerome O'Neill of Oceanside, San Diego county.

WHAT DO YOU THINK OF GOVERNMENT ROADS?

To the Editor: I am very anxious to obtain for the benefit of the joint committee, an intelligent expression of public opinion on the basic questions involved in the granting of Federal aid in road improvement. It occurs to me you might like to co-operate in this matter to the extent of stimulating the public to an expression of their views. If this suggestion strikes you favorably, will you kindly advise me as early as practicable as to public opinion in your section of the country on the following questions:

1. Should the Government make appropriations in aid of public roads?
2. On what roads should the first Government appropriation, if made, be expended: (a) all roads; (b) post roads (R. F. D. and star routes); (c) main traveled market roads; (d) main highways connecting important cities and towns in State; (e) trunk line, interstate highways connecting State capitals and large cities?

3. Should the Government appropriation be expended on construction, on maintenance, on general improvement, or on any or all of these, or should the allotment by the Government be unconditional, or paid as a reward after local authorities have constructed or maintained a highway in good condition?
4. What proportion of cost of construction, improvement, or maintenance should be borne by National Government, State, county road district, and abutting property owners, respectively, or what amounts should be allotted to the States on an unconditional plan, or what amounts per mile should be paid as rewards?

5. Should the Federal appropriation be apportioned among the States on basis of population, area, mileage of roads, mileage of rural and star routes, taxable valuation, or a combination of these?
6. Should the supervision of construction or maintenance of Government aided roads be by the Federal Government, the State and local authorities, or jointly?

Kindly let me know in what manner you submit these questions to the people of your community, and how soon you can probably report the consensus of opinion.

JONATHAN BOURNE, JR.,

Chairman, Joint Committee on Roads,
U. S. Senate, Washington, D. C.

[Our community is wide and all members thereof are invited to address Senator Bourne at the address given.—EDITOR.]

From the reports of successful efforts by the government agents in overcoming the bitter element in dates and persimmons by the use of carbonic acid gas, experiments have been undertaken to see if the bitterness of ripe olives can be overcome in the same way, and enough has been accomplished to lead to hopes of ultimate success. Dried olives in the Mediterranean countries are a standard article of food, and some method of making them fit to eat in this country should be of great value. In Europe some varieties which are practically free from bitterness when dried are grown for drying,

but it would be an advantage in treating other varieties to produce that condition.

Several inquiries have come regarding the way to secure a copy of the bulletin on walnut culture reviewed in these columns several weeks ago. It can be obtained on request by writing to the Director of the Agricultural Experiment Station, Berkeley, Cal. In size, quality and everything except cover it is as good as any book could well be on this subject, and no person interested in walnut growing should be without it.

The Jersey Breeders' Association held a meeting at Stockton last week and took up a number of important matters.

See That WORM?

Are there any worms in your fruit, Mr. Orchardist? There wouldn't be if the spray you used got into the bud and killed the egg. The spray that doesn't penetrate and kill the egg as well as the insect is wasting both your money and your time.

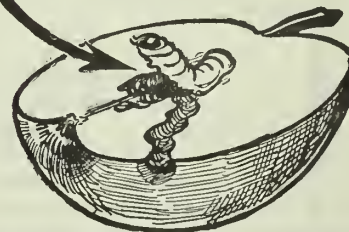
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The Home Circle.

A Meat Man in Love.

Dear heart, I'm in an awful stew
How to reveal my love for you;
I'm such a mutton-head, I fear,
I feel so sheepish when you're near.
I know it's only cow-ardice
That makes these lamentations rise.
I dread a cut-let me explain
A single roast would give me pain.
I should not like to get the hooks,
And dare not steak my hopes on looks.
I never sausage eyes as thine,
If you would butcher hand in mine,
And liver round me every day,
We'd seek some ham-let far away;
We'd meat life's frown with love's carress,
And cleaver road to happiness.

—English Exchange.

Color Scheme of Beauty.

A letter has come to me asking aid for the ugly ducklings. A woman who describes herself as a "brunette with drab hair, dull brown eyes and a yellow skin" asks that I shall tell "the hundreds of unattractive women one sees on the streets every day" what colors they may wear so as to improve their appearance.

In the first place I shall say to the ugly ducklings that they are ugly of their own accord. This seems a very harsh statement, but it is true nevertheless. No woman ever came by drab hair, dull brown eyes and a sallow complexion naturally. If she possesses these undesirable features they are the outcome of her own neglect. Nature has a way of creating beauty and meddling mortals of destroying the same.

Of course, there are many members of that sex which is invariably described as fair who are far from it. Their eyes may be too small, their mouths too large for a beauty, or perhaps their noses miss the Venus mark by a very large margin. But even these defects may be hidden in the ensemble of an appearance which may be made pleasing through an effective arrangement of the hair, an expression of sweetness or a complexion in which bloom the roses of good health. Ugliness is not so much a matter of feature as a mismanagement of the few good points which every woman possesses.

Probably there is no woman in the world who does not long secretly for beauty. Yet there are a great many who are too lazy to cultivate the qualities they desire. Beauty, let no one mistake it, is a hard task mistress—one who demands constant care. Pretty women realize this better, probably, than their less attractive sisters, for they have found that it takes a good deal of time and attention to preserve the good looks with which they have been blessed. It is just here that the ugly ducklings have failed. They have neglected to nurture whatever good points nature has given them.

There is, of course, no reliable recipe by which an ugly duckling can be changed into a pulchritudinous swan. If there were, all of us would be fascinating sirens and the beauty shops would go broke. There are, however, a few simple rules which, if faithfully followed, will enable any woman, no matter how ugly, to improve her appearance.

Women who have dull yes, drab hair and sallow complexions must set about first to remedy these faults. If their complexions are sallow, it is because of ill health. Let them exercise, eat simple foods and consume as much water as their systems will hold. If hair is drab, it is because of neglect. Five minutes brushing each night will work wonders,

while a pretty coiffure will even make drab hair look attractive. Dull eyes should be rested as often as possible. Rest them while riding in street cars by closing the lids. And there has never been found a better prescription for beauty than plenty of sleep.

"But we haven't time for all these things?" I can hear my readers say, to which I reply that every woman can find time to do the things she really wants to do.

Now we come to the question of color, which, of course, is of more importance as to the class now under discussion than to any other type of femininity.

Women who are dull in coloring should never surround themselves with brilliant shades. They will only accentuate the point which they wish to conceal. A dull jewel is never combined with a beautiful brilliant; the contrast is too great to show off either to any advantage. Women of this type should learn a lesson from the jewelers, surrounding themselves only with such hues as will harmonize with their own indifferent colorings.

It must not be supposed, however, that the wardrobe will be unattractive because it must be selected from the somber shades. There are a great many colors in the softer tones which are very beautiful.

A soft gray can always be worn to advantage by drab women, as it throws whatever color they have into high relief. The subdued plums and purples are also attractive, as is that pinkish brown shade called ashes of rose. Blue in almost any tone except the most brilliant tints, such as electric, Yale blue, etc., can be worn by women who belong to this class. For evening wear, lavender, pink in its lighter tones, yellow combined with some deeper tone, such as gold or blue, which will give it character, a baby blue and a very soft shade of rose are the colors which should be selected. Those to be avoided are brown in almost any tint, green in all its variations, red and black and white.—Florida Times-Union.

The Art of Breathing.

What most people require is some special training in the form of deep breathing exercises for the purpose of developing the chest and increasing the lung capacity, says Good Health, which suggests the following movements—Stand erect with hands at the sides or on the hips, and breathe in slowly through the nose, filling the lungs in their fullest capacity. After holding the breath for a few moments breathe out through the nose slowly until the lungs are completely emptied. Repeat the deep breathing six to twelve times or more. The same exercise may be taken while sitting or even while lying on a couch, if desirable or necessary. Other deep breathing exercises suggested are as follows: Take the erect standing position as described above, and breathe in slowly through the nose, again filling the lungs completely. Then hold the breath for thirty seconds or longer, but without strain, after which breathe out slowly. Repeat six to twelve times.

The butter—Hello, old man! How are you?

Coffee—Oh, pretty weak. I might say I'm just about covering the ground. But you look pretty healthy.

The butter—Yes; I feel pretty strong.

Burly Party—Are you aware, sir, that you deliberately placed your umbrella in my ear last evening? Little Bifferton—Very careless of me, I'm sure. I wondered what became of it, and—would it be too much trouble to ask you to return it?

Handy Things for the Kitchen.

The well-equipped kitchen is not necessarily the one that contains most of the new contrivances. It is rather the kitchen in which all the accessories have been selected with care as to fitness and quality, says the Christian Science Monitor.

If the housewife would have lasting satisfaction, only the best should be considered. This does not mean the most expensive. For example, one of the necessities, the potato-masher, gives the best service when of the cheap wooden variety. Such a masher may be used for purposes other than that for which it was originally intended. It may be used to help make a tough steak tender, or for pressing fruit or vegetables through the fine strainer.

Among the necessities are a ladle, a skimmer, a basting spoon, two small scoops, a wooden lemon squeezer, a large four-pronged fork to hold a roast when it is being carved, and a kitchen carving knife.

For stirring, wooden spoons will be found the best, as acids do not affect them. Some housewives think that the hand-carved spoons will do better work, believing that the shape is more practical than that of the machine-cut kind. A kitchen knife and fork, a paring knife, and one for bread, with a serrated or straight edge will be needed.

A Dover egg beater and a wire whip, a wooden rolling pin, a flour dredger, an apple corer, a corkscrew, an ice pick, and a kitchen salt and pepper shaker, all should be included.

The ordinary, inexpensive toaster will, if the heat is properly regulated, make as good toast as any of the more expensive kinds.

A rotary flour sifter is the best kind, and a good one should be selected. A broad cake turner will be found useful, not alone for pancakes, for it answers admirably for turning an omelet, or for French toast, or potato cakes.

A biscuit and a doughnut cutter are needed. The former will answer for cutting out cookies and the latter for jumbles. A nutmeg grater with space to hold the nutmegs will be found handy. Two funnels will be needed—a small one to be used when filling salt shakers, and small jars and bottles, and another quite large. To protect the table, it is best to have asbestos mats. Three of these are sufficient.

A wire frying basket is another very useful article. It can be used to advantage when boiling whole peeled potatoes, or Brussels sprouts or cauliflower; in fact, any fruits or vegetables which do not permit of much handling after they are cooked. Some of the more delicate dishes, such as sweetbreads or mushrooms, should never be stirred with a tin spoon, nor should they be cooked in any vessel that is chipped. Two aluminum tablespoons and as many teaspoons will be needed.

An important essential is a pair of good scales. It should have a scoop and the ounce marks should be easily seen. A measuring glass and spoon will help to make for uniform results in baking.

Now a word as to the kind of receptacles in which the various supplies are kept.

The glass jars with the aluminum or glass tops are very good, as one can see at a glance if their contents are running low. The porcelain kinds in the square shape with the Delft design are pretty, but they are more expensive than the glass kinds, and then one is obliged to open them to see the contents.

Two large canisters of twenty-five pounds capacity are needed for flour and sugar, if one would take advantage of

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he frequent money-saving sales in these staples.

Medicinal Qualities of Vegetables.

Asparagus is very cooling and easily digested.

Cabbage, cauliflower, broccoli and Brussels sprouts are cooling, nutritive, laxative and purifying to the blood, and also act as tonic, but should not be eaten too freely by delicate persons.

Celery is delicious cooked and good for rheumatism and gouty people.

Lettuces are very wholesome. They are slightly narcotic and lull and calm the mind.

Spinach is particularly good for rheumatism, gout, and also in kidney diseases.

Onions are good for chest ailments and colds, but do not agree with all.

Watercresses are excellent tonic, stomachic and cooling.

Beet root is very cooling and highly nutritious, owing to the amount of sugar it contains.

Parsley is cooling and purifying.

Turnip tops are invaluable when young and tender.

Potatoes, parsnips, carrots, turnips and artichokes are highly nutritious, but not so easily digestible as some vegetables. Potatoes are the most nourishing and are fattening for nervous people.

Tomatoes are health-giving and purifying, either eaten raw or cooked.

Chili, cayenne, horseradish and mustards should be used sparingly. They should give a zest to the appetite and are valuable stomachics. Radishes are the same, but are indigestible, and should not be eaten by delicate people.

The Use of Sugar.

The free use of sugar is a very injurious practice, causing catarrh of the stomach and bowels, acid dyspepsia, diabetes and diseases of the liver and kidneys. Certain classes of invalids should avoid this article which enters so largely into our modern dietary. This is especially true of those who suffer from ulcer of the stomach, acid dyspepsia, high blood-pressure, as in many cases of Bright's disease, gastric catarrh and intestinal catarrh. No distinction is made as regard the source, whether beet or cane, both of which come under the head of manufactured sugar, which is the enemy. Sugar abounds naturally, in many wholesome food cereals and vegetables, and in that way is harmless. The excessive use of manufactured sugar on top of all the natural sugars that are contained in food the late Sir Benjamin Ward Richardson thought one of the most subtle dangers we had to face. All who suffer with their livers or dyspepsia, or anything of that sort, should strictly avoid sugar. The British cook is far too liberal in the use of it, and the art of preserving fruit is almost lost to us owing to the too liberal use of sugar in making jams. Fruit can be preserved without these masses of saccharine matter.—Farm and Home, London.

His Opinion.

The late James McNeil Whistler was standing bareheaded in a hat shop, the clerk having taken his hat to another part of the shop for comparison. A man rushed in with his hat in his hand, and, supposing Whistler to be a clerk, angrily confronted him.

"See here," he said, "this hat doesn't fit."

Whistler eyed the stranger critically from head to foot, and then drawled out: "Well, neither does your coat. What's more, if you'll pardon my saying so, I'll be hanged if I care much for the color of your trousers."



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They save time
and money for
the farmer.

A Timely Comment on Rural Telephones and Parcel Post
Postmaster-General Hitchcock has the following to say regarding rural telephones in connection with the Parcel Post:—
"Rural telephones have spread over practically the entire country, and they will be used in conjunction with the parcel post to the advantage of both the farmer and the country merchant. The housewife, for example, finds that she is out of sugar; she steps to her telephone and orders it sent by parcel post. If the farmer breaks a harrow or a part of some farm equipment, it will not be necessary for him to hitch up and drive to town; he will merely step to his telephone and order the new part sent by parcel post. The timesaved will more than compensate him for his outlay of stamps. I expect to see the country merchants advertising free delivery in their local papers, just as their city brothers do. They will use the parcel post as their delivery wagons."



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THE MARKETS.

San Francisco, Feb. 12, 1913.

(Unless otherwise noted, quotations represent prices paid to the growers.)

Cereals.

WHEAT.

The local market remains comparatively quiet, and prices remain as for some time past, though there is a rather easier feeling in all lines. There is little California grain on the market, most supplies coming from the North.

California Club	\$157½ @ 1.60
Sonora	Nominal
White Australian	Nominal
Northern Club	1.57½ @ 1.60
Northern Bluestem	1.67½ @ 1.72½
Northern Red	1.62½ @ 1.70

BARLEY.

No change has been made in prices, and while offerings of choice feed are a little larger, values are firmly held. Business is still rather quiet.

Brewing and Shipping...	\$1.45 @ 1.50
Choice Feed, per ctl.....	1.32½ @ 1.40
Common Feed	Nominal

OATS.

The market is dull, and the tendency of prices downward. Quotations on both white and black oats have been shaded.

Red Feed	\$1.85 @ 1.90
Seed	2.00 @ 2.10
Gray	Nominal
White	1.50 @ 1.55
Black Seed	2.20 @ 2.30

CORN.

A little California corn has been offered here in the last few days, but there has been practically no business, and values are not established. Holders have been asking about \$1.75, but nobody seems willing to buy at this figure. Eastern and other grades are quiet at the old quotations.

Cal. Yellow	Nominal
Eastern Yellow	\$1.50 @ 1.55
Eastern White	Nominal
Kaffir	1.50 @ 1.55
Egyptian	1.70

RYE.

Offerings are very light, and while the demand also is limited, holders are asking a slight advance.

Rye, per ctl.....	\$1.50 @ 1.55
-------------------	---------------

BEANS.

Prices on all descriptions stand exactly as last quoted, and just at present the market shows no marked tendency either up or down, though holders are still rather firm in their views. The demand for shipment is only fair, but all descriptions are gradually moving off, most of the business at present being in mixed cars. Values on the wharf are nominal, as there is practically nothing left in the up-river districts, and the prices given are those current in the local trade. It is reported that planting of limas this year will be more extensive than before.

Bayos, per ctl.....	\$3.25 @ 3.45
Blackeyes	3.15 @ 3.25
Cranberry Beans	4.70 @ 5.00
Horse Beans	2.25 @ 2.35
Small Whites	4.50 @ 4.65
Large Whites	4.20 @ 4.35
Limas	5.60
Pea	Nominal
Pink	3.70 @ 3.90
Red Kidneys	4.00 @ 4.25
Mexican Red	4.00 @ 4.20

SEEDS.

There is a fair seasonable demand for some lines, but in general business is rather quiet. Alfalfa is a little lower, while canary seed is scarce and high.

Alfalfa	15 @ 16 c
Broomcorn seed, per ton...	\$29.00 @ 30.00
Brown Mustard, per lb.....	3¾ c
Canary	5 @ 5½ c
Hemp	3½ @ 4 c
Millet	2¾ @ 3 c
Timothy	Nominal
Yellow Mustard	Nominal

FLOUR.

Values are steady at the old quotations, and the demand keeps up on about the usual scale.

Cal. Family Extras.....	\$5.60 @ 6.00
Bakers' Extras	4.60 @ 5.20
Superfine	3.90 @ 4.10
Oregon and Washington..	4.90

Hay and Feedstuffs.

HAY.

Arrivals for the last week show a marked increase, and as the local market is still quiet, values show a downward tendency, though there has been no quotable decline. Hay which will grade as strictly fancy in this market is extremely scarce and would probably bring a premium. Weather conditions of late have been favorable for the growing crop, and the outlook in most sections is favorable, the future of the market will depend largely on the extent of the spring rains. The movement south is smaller than it has been, though there is still some demand for shipment. Country prices, especially in the San Joaquin, are said to be somewhat easier, with more willingness to sell on the part of holders. The movement of alfalfa in the interior is heavy, with a downward tendency in prices.

No. 1 Wheat, or Wheat and

Oat	\$18.00 @ 20.00
do No. 2	15.00 @ 18.00
Lower grades	12.00 @ 14.50
Tame Oats	15.00 @ 20.00
Wild Oats	12.00 @ 16.50
Alfalfa	10.50 @ 13.50
Stock Hay	9.00 @ 10.50
Straw, per bale	35 @ 75c

FEEDSTUFFS.

Roller barley is a little higher, but other lines are rather easy, with only a moderate demand. Middlings have been shaded a little, and cracked corn is \$1 per ton lower.

Alfalfa Meal, per ton.....	\$18.50 @ 19.00
Bran, per ton	25.00 @ 26.00
Oil-cake Meal	40.00 @ 41.00
Cocanut Cake or Meal.....	Nominal
Cracked Corn	34.00 @ 35.00
Middlings	34.00 @ 35.00
Roller Barley	28.00 @ 29.00
Roller Oats	35.00 @ 36.00
Shorts	29.00 @ 30.00

Garden Truck.

VEGETABLES.

A few Oregon onions are coming in, and choice local stock is bringing higher prices, though only selected lots will bring the top quotation. There is a great deal of stock showing deterioration, and 65c is the best price for ordinary offerings. Garlic is lower, with liberal supplies of ordinary stock. Cauliflower has taken another drop, and cabbage is also easy, supplies of both showing considerable increase. Celery is in liberal supply and lower, and lettuce is rather easy. Most lines of southern stock are still scarce, and frequent lots of summer vegetables are coming in from Florida, bringing extreme prices. Cucumbers and peppers have advanced sharply. Local rhubarb is coming in more freely, but good lots bring an advance. Arrivals of asparagus are also becoming fairly regular, but supplies are light and prices very high.

Onions—

Yellow, ctl.	50 @ 90c
Garlic, per lb.	1½ @ 2c
Tomatoes, per box	\$ 1.50 @ 1.65
Cucumbers, per box.....	2.50 @ 2.75
Cabbage, per ctl.....	40 @ 50c
Carrots, per sack.....	50c
Cauliflower, per doz.....	30 @ 40c
Celery, crate	2.00 @ 3.00
Rhubarb, lb.	5 @ 12c
Mushrooms, box	25c @ 1.00
Artichokes, doz.	75c @ 1.25
Sprouts, lb.	6 @ 7c
Green Peppers, lb.....	15 @ 20c
Lettuce, crate	1.25 @ 1.75
Eggplant, lb.	25c
Green Peas, lb.	25c
Asparagus, lb.	50 @ 85c

POTATOES.

The potato market continues in bad shape, the local demand being limited to immediate needs, while supplies are excessive. So far there has been no shipping business, and the expected inquiries for export have not materialized.

River Whites, ctl.....	35 @ 50c
Salinas, ctl.	\$ 1.00 @ 1.25
Oregon, ctl.	65 @ 1.00
Sweet Potatoes	1.90 @ 2.00

Dairy Produce.

POULTRY.

Arrivals of Eastern stock have been much lighter than last week, and it is not expected that much more will arrive in the next few days. The excessive offerings of hens are accordingly well cleaned up, and while prices are not quotably

higher, there is a firmer feeling. Young California stock is in rather light supply and finds a good demand at firm prices, small broilers and fryers being somewhat higher. Arrivals of dressed turkeys are light, but values show no improvement, and no unusual demand is expected.

Large Broilers, per lb.....	25 @ 26 c
Small Broilers, per lb.....	25 @ 27 c
Fryers, per lb.....	22 @ 23 c
Hens, extra, per lb.....	15 @ 17 c
Hens, large, per lb.....	15 @ 16 c
Small Hens, per lb.....	16 @ 16 c
Old Roosters, per lb.....	10 @ 12 c
Young Roosters, per lb.....	18 @ 20 c
Squabs, per doz.....	\$ 3.00 @ 3.50
Geese, per pair.....	1.50 @ 2.00
Ducks, doz.	4.00 @ 6.00
Turkeys, dressed	24 @ 25 c

BUTTER.

Arrivals have been fairly large, and with a general expectation of lower prices buying is limited to actual needs. Values are now on a lower level than last week, and the feeling is still one of weakness.

	Thu.	Fri.	Sat.	Mon.	Tu.	Wed.
Extras	37	36	36½	36	34½	34½
Firsts	34	34	34	33	32	32

EGGS.

There has been little demand for shipment in the last few days, and with a heavy increase in arrivals the first of the week prices have dropped rather sharply. Values are fairly steady at the present level, but may go lower before long, as storage operators are taking a much more conservative view than last year and are less disposed to bid prices up.

	Thu.	Fri.	Sat.	Mon.	Tu.	Wed.
Extras	24	25½	24	24	21	21
Firsts	23	23	23	23	20	20
Selected						
Pullets.....	23	23	23	23	20	20

CHEESE.

Fancy flats are a little higher and steady at the advance, while Y. A.'s are easier. Monterey cheese is weak and lower.

Fancy California Flats, per lb.....	16½ c
Firsts	14 c
New Young Americas, fancy.....	17½ c
Monterey or Jack Cheese.....	16 @ 17 c

Deciduous Fruits.

The pears in cold storage have been about cleaned up, leaving nothing but apples under this head. There is little outside demand for apples, and the local market is a dull affair, with more than plentiful supplies and no buying beyond immediate needs. General offerings show no improvement, but first-class Newtown Pippins find a very fair demand and are held at a further advance, good 3½-tier stock bringing \$1.25, while fancy 4-tiers are held at \$1.

Apples: Fancy Red, box.....	75c @ 1.25
Red Pearmain	40 @ 60c
Bellefleur	65c @ 1.00
Newtown Pippins, 3½ to 4-tier	85 1.35
Common	40 @ 60c

Dried Fruits.

This market is fully as uninteresting as usual at this time of year. Values show no quotable change, and there is at present no demand of much consequence in any quarter. The export movement seems to be over for the time being, and Eastern buyers are keeping almost entirely out of the market. Owing to the continued dullness, there is some talk here of freer offerings in the country, but such reports have not been verified. There is a little easier feeling in the smaller sizes of prunes, but the liberal premium is still offered for larger sizes, which are scarce. Santa Clara reports indicate prospects of a light crop owing to the limited rainfall, with a tendency among growers to hold the remaining stock for higher prices. Thompson seedless raisins, also, are said to be practically cleaned up. Apples still drag, as the market is oversupplied. Packers are taking little interest in anything, and are not likely to buy much until the Eastern demand revives. The New York Journal of Commerce says:

"Dullness is still the dominant feature of the market for all California and imported dried fruits. In spot goods business is confined to small lots needed for immediate use, and little or no interest is manifested in offerings for forward delivery. The general tone of the market is easy."

"While there has been no quotable decline in California prunes out of store or for prompt shipment from the Coast, the trend of prices appears to be in buyers' favor, though the statistical position of the large sizes is such that any pronounced increase in the demand would be likely, it is held, to be followed by an immediate hardening of the market. Oregon prunes, both for immediate and forward delivery, are dull and nominal."

"There seems to be no demand to speak of for apricots or peaches, but as this is not the season in which buyers are interested in them, there is less pressure to sell than in some other lines, though the market for these goods also has an easy tone. Raisins are neglected and prices are nominal."

(New crop.)

Evap. Apples, per lb.....	3½ @ 5 c
Apricots	9 @ 10 c
Figs: White	3½ @ 4½ c
Black	3 c
Calimyrna	4 @ 5 c
Prunes: 4-size basis.....	2½ @ 3½ c
(Premium: 1c for 40s-50s; 2c for 30s-40s.)	
Peaches	4 @ 4½ c
Pears	4 @ 7 c
Raisins—	
Loose Muscatels in sweatbox	2¼ @ 2½ c
Thompson's Seedless.....	4½ c
Seedless Sultanias	3 @ 3½ c

Citrus Fruits.

The orange market in the East has been in very bad shape for the past week or more, due to frost conditions primarily. The public was afraid of frosted fruit, and the good suffered with the bad, as the demand was so light that all markets became congested. However, from most auction points a better demand was reported the first of the week. At New York on Monday, February 10th, navel oranges brought from \$1.05 up to \$2.80. At Pittsburgh the auction prices were the same. At Boston the highest price was \$3.35, and at Cleveland the range was from \$1.10 to \$2.55. Lemons are about as before, ranging from \$4.70 to \$5.50 at auction.

Shipments from California are being held back to some extent, awaiting better demand. It is stated that a lot of the fruit sent East during the past month will not sell for enough to pay expenses, and it is now generally conceded that the part of the crop saved from freezing will not total more than 5,000 carloads.

The Fruit World prints a letter from a Phoenix, Arizona, correspondent stating that all orange trees there would lose their leaves, some trees were killed, and a great deal of nursery stock ruined by the frost. All eucalyptus trees under three years old were also done for.

The expected movement has not taken place in the San Francisco market, the demand for oranges being on the same limited scale as before. Sound navels are quoted higher, but supplies here are ample and values are only maintained by the firmness in primary markets. Local grapefruit is lower, but fancy Florida stock sells up to \$6 per box. A good many frosted lemons are offered at \$1 to \$2 per box.

Oranges, per box—	
Navels, good to fancy.....	\$2.00 @ 3.00
Frosted	50c @ 1.00
Tangerines	1.00 @ 2.50
Grapefruit, seedless	1.50 @ 3.50
Lemons: Fancy	6.50 @ 7.00
Choice	6.00 @ 6.50
Limes	Nominal

Nuts, Honey, Hops, Etc.

NUTS.

Jobbing values remain firm as before, supplies in all hands being very light, while the demand is quiet as usual at this season.

Almonds—	
Nonpareils	17½ c
I X L	16½ c
Ne Plus Ultra.....	15½ c
Drakes	12½ c
Languedoc	11½ c
Hardshells	8 c
Walnuts, 1912 crop—	
Softshell No. 1.....	16 @ 16½ c
Hardshell No. 1.....	15 @ 15½ c
No. 2	10½ c
Budded	17 c

HONEY.

White extracted shows a little more firmness, but supplies of most grades in the local market are sufficient for the current demand, which is not very extensive at this season.

Comb, white	12½ @ 14½ c
Amber	10 @ 12 c
Dark	9 @ 10 c
Extracted, white	8 @ 10 c
Amber	6 @ 6½ c
Off Grades	5 @ 6 c

BEESWAX.

So far there has been little or no business for shipment, buyers and sellers being apart in their views. There is very little business locally.

Light30 @31 c
Dark25 @26 c

HOPS.

There is practically no movement in the country at present, the crop being pretty well out of first hands. Values are steadily held, and there is more or less business for shipment within the range quoted.

1912 crop12½@20 c

WOOL.

The wool market is featureless, the Eastern buyers showing no interest at present, and it will be several weeks at least before there is any activity in this market. Meanwhile values are entirely nominal.

Fall Clip:

Northern and free Mendocino12 @14 c
Lambs9 @13 c
San Joaquin and Southern. 6 @10 c
Mohair15 @28 c

HORSES.

The current volume of business in the local market is hardly as large as last fall, but the market is in decidedly good shape, and the demand is gradually growing for all classes of desirable stock. The prices realized are fully up to quotations, and have never been better at this season. Any heavy increase in shipments to this market might bring undesirable results, but so far no difficulty has been experienced in disposing of the arrivals.

Heavy drafters, 1700 lbs. and over\$300@350
Light Drafters, 1500 to 1650.... 250@285
Chunks, 1350 to 1500 lbs. 200@250
Wagon Horses, 1250 to 1350.... 180@225
Delivery Horses, 1050 to 1250... 125@150
Desirable Farm Mares..... 100@125

Live Stock.

Hogs have again been marked up ¼c and are firm at the advance. The local market for dressed meats is quiet, and some shading of prices is noted on beef and mutton, though pork is strong.

Steers: No. 17 @ 7¼c
No. 26¼ @ 6¾c
Cows and Heifers: No. 1.... 6 @ 6¼c
No. 25¼ @ 5¾c
Bulls and Stags.....2½ @ 4½c
Calves: Light7¼c
Medium6¾c
Heavy5 @ 6 c
Hogs: Grain-fed, heavy.....7 @ 7¼c
150 to 250 lbs.....7½ @ 7¾c
100 to 150 lbs.....7¼ @ 7½c
Prime Wethers5½ @ 5¾c
Ewes4½ @ 4¾c
Lambs6¼ @ 6½c

DRESSED MEATS.

Steers11¼@11½c
Cows10½@11 c
Heifers11 c
Veal, large10 @11 c
Small12 @13 c
Yearlings11 @11½c
Mutton: Wethers9½@10½c
Ewes9 @10 c
Spring Lambs12 @13 c
Dressed hogs11½@12 c

HIDES.

Values remain as last quoted, with no demand of any importance.

Heavy Steers, over 56 lbs. 14 c
Medium13½c
Light Steers, under 48 lbs. 12½@13½c
Heavy Cows, over 50 lbs.. 12½@13½c
Light Cows, 30 to 50 lbs.. 12 c
Kip14½@15½c
Veal17½@18½c
Calf17½@18½c
Dry—
Dry Hides23 @24 c
Dry Kip, 10 to 15.....24 @25 c
Dry Veal, 5 to 10.....29 c
Dry Calf, 7 down.....29 c
Horse Hides—
Salt: Large\$2.25
Medium1.75
Small75c
Colts25@ 50c
Dry75c@ 2.00
Sheep Skins—
Long Wools\$ 0.85@ 1.25
Medium Wool, 6 to 9 mos.. 60@ 90c
Short Wool, 3 to 6 mos... 40@ 60c
Lambs35@ 70c

PUBLISHER'S DEPARTMENT.

In a letter from Mr. Etter, of Briceland, dated February 6th, he states that he is gradually moving the strawberry plants to the paid-up subscribers of the PACIFIC RURAL PRESS. He says: "We are told that the mail outgoing is carried through without delay. I am sure that is more than can be said of the incoming, as we have received no RURAL PRESS in a month and most other papers ditto. The trouble is on this side of the railroad at Longvale. I will mail you a package of the plants today, so that you may see for yourself just how the plants are coming through." Up to this writing, February 12th, the plants have not been received. Our subscribers who are entitled to the plants are doubtless receiving or will get them very soon.

A correspondent from Sutter county states that over 700 acres of land will be set to peach trees this season in that county, most of the trees being either Tuscan or Phillips cling. The heavy demand for nursery stock has caused a shortage in the supply. Quite a large acreage is being set out to Thompson's Seedless grapes in that county also. We learn from other sources that the heavy demand for prune and olive trees is taxing the nursery supply. The frost of last month killed most of the citrus nursery stock, it being stated that not over 50,000 young trees will be available for planting this season.

While the PACIFIC RURAL PRESS has been and is gaining in circulation very fast, yet the fact that we charge \$2 per year for the paper precludes it from securing as large a list of subscribers as it would were the price 50 cents or \$1 per year. However, we believe that the more than 9,000 circulation of the RURAL PRESS is worth to advertisers fully as much as a circulation of four times the number if the price was less and the list was secured by the giving away of premiums. A compact circulation of 9,000 copies, almost all in California, the subscribers of which pay \$2 per year, is valuable to advertisers who want to reach the buying farmers—such a list is what we give to those who use space in our columns.

POINTS ON HAY FEEDING.

At a recent meeting of the Idaho Swine Breeders' Convention, Prof. E. V. Iddings of the University of Idaho then spoke on "Principles of Swine Feeding." As outlined in the Rural Spirit, he said there are four distinct lines to work on for success. First, the keeping out of diseases. Be careful where you get your breeding stock. Patronize pure-bred breeders of the Northwest. He and Prof. Carlyle find as good individuality and breeding in the Northwest as anywhere, and the breeders being in closer touch here is more certainty of right treatment. Second, avoid the abuse of the foraging proposition. The idea that the hog is an extra good forager and that nothing but alfalfa is needed is a mistake. A good grain feed is necessary. Early in life pigs need a good nutritious pasture with grain in combination. Brood sows in summer should be given plenty of rough food, but always a little grain. Some people even mistakenly carry brood sows through the winter on alfalfa alone. They can live, but the proper ration is about two pounds of alfalfa hay. Third, there is the utilization of by-products; the waste of fields can be used. A hog tight fence pays for itself in three years and is then clear profit. Fourth is feeding, he discussed the feeding value of potatoes. Four and a half pounds is about equal to a pound of grain or four pounds if cooked, but either should be used as a supplement to a grain ration. One experiment had shown that it took twenty-six pounds of apples to equal a pound of grain; another, sixty-four, so the feeding value is very little. Concerning the use of legumes, alfalfa is best, with clover a close second. At the Missouri station alfalfa was worth \$35 per acre with hogs at six cents. The question of feeding alfalfa hay is most im-

portant here and he gave results of their own experiments. Feeding hay in racks

is the cheapest method of keeping hogs through the winter.

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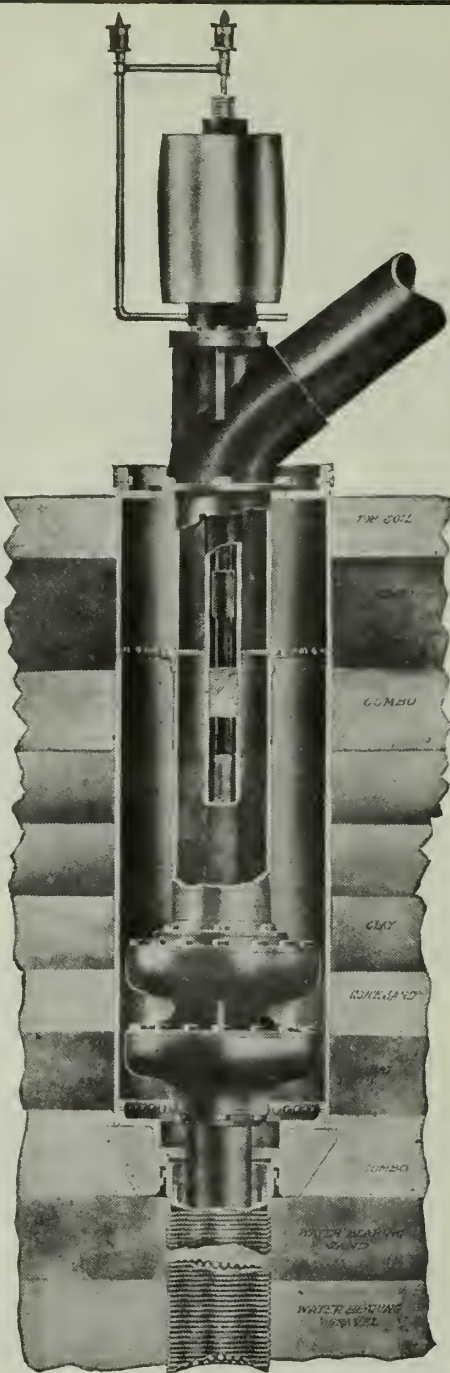
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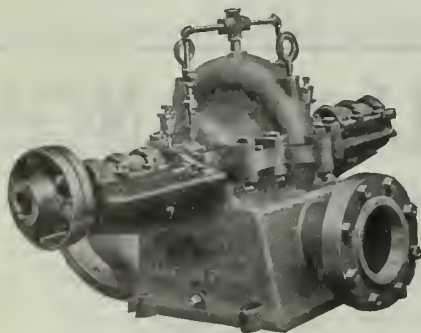
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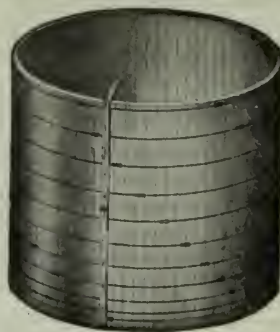
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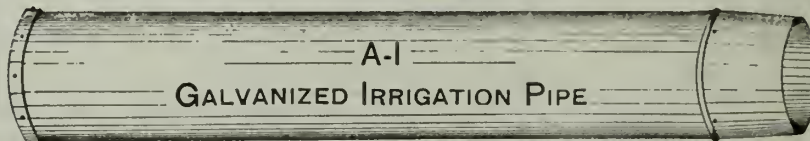


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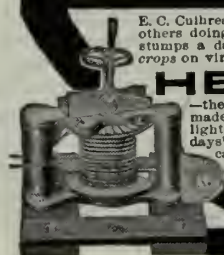
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THE PACIFIC RURAL PRESS

Vol. LXXXV. No. 8.

SAN FRANCISCO, SATURDAY, FEBRUARY 22, 1913.

Forty-Third Year.

The Problem of Hard Soil.

[Written for PACIFIC RURAL PRESS by WM. M. BRISTOL]

The student of nature in southern California cannot fail to notice the extensive stretches of red soil, the remnants of the general blanket deposited over the region when, at some remote period, it was the bottom of a lake or a sea. The face of the East Highland mesa, in San Bernardino county, which was uplifted at some subsequent time, shows this deposit to be at least 100 feet in depth.

Throughout this great depth it is practically uniform in character—a fairly compact gravelly loam, containing goodly percentages of lime, potash and phosphoric acid; but by some process of nature not satisfactorily explained by the geologists a stratum variously designated as hardpan or cement gravel, ranging in thickness from a few inches to several feet, was spread over the surface of this far-reaching deposit. On top of this hardpan there has developed or accumulated a layer of fine grained soil of greater or less depth; and in the tillage of this top soil, which is easily compacted, the fruit grower finds one of his most perplexing problems.

The time-worn maxim that "contentment is riches" does not apply in this case; and many an orchardist, riding across some waste of sand, has devoutly wished that he might be able to spread a blanket of it over his rich but refractory red land. The fact that 400 wagonloads of two cubic yards each would be required to cover an acre six inches deep, has, until recent years, appalled and daunted the dreamer; but the citrus industry in California has reached its present substantial proportions largely because of persistent dreaming and the determination of the dreamers to make their dreams come true. In the Highland-Redlands region a start has been made in the application of the sand-blanket; and now comes J. E. Woodruff, of Redlands, with the story of how he spread nearly a foot of sandy sediment over twelve acres of the discouraging adobe. Mr. Woodruff's orchard is on a rolling slope at the west end of the world-famed Smiley Heights, where every prospect pleases, but where the soil is hard. I have asked him to tell his story to the readers of the PACIFIC RURAL PRESS, and he does it in the following lucid narrative:

How I conquered Adobe Orange Land.—For fifteen years I tried to bring my orange grove into good bearing condition by carefully irrigating every thirty days, by endeavoring to store water in the soil by winter irrigation, by subsoiling the land to the depth of eighteen inches

in the effort to get the water down below the plowsole, putting on 20 cubic feet of manure one year and commercial fertilizer the next year, looking forward each successive season for the banner crop—which never came. In good years I did not have more than three boxes of oranges to the tree and in poor years not over two. At last I began to realize that if my trees were to make proper growth and bear as they should I must be a law unto myself and not trust fertilizer men to tell me what was lacking.

Whenever I heard of an orchard that had a "brag crop" averaging ten or twelve boxes to the tree, I hiked unto that grove to see it and to interview the owner, thus inspecting various banner groves in Redlands, Covina, Azusa, Placentia, Fullerton and Whittier. I found that my fertilizing method did not differ from those of these successful growers, although some of them boasted that they were averaging eight to ten boxes per tree from twelve-year-old orchards without using any fertilizer at all. I then realized, as never before, that natural soil conditions made these orchards the banner orchards they were, rather than brains, extra labor and fertilizers. In each of these groves I found the soil to be of an alluvial nature—finely decomposed granite or sedimentary deposit containing a good percentage of potash and phosphoric acid. This soil never baked after a rain or an irrigation. I soon ceased looking up the owners of these productive groves and thereafter did my interviewing with the trees and the soil constituents—the actual makers of the "banner groves."

The next year after making these back to nature trips and consulting her in her methods of doing things, I felt prepared to be a law unto myself in my own orchard and put teams at work to do for it what nature had done for the favored groves I had examined.

In San Timoteo canyon, 200 feet below my orchard and a mile and a half away, is a tract of sedimentary soil—a savings bank where nature, for untold ages, has been making deposits to the credit of the present generation. For five years I have had my teams hauling this sediment up to my orchard—literally an up-hill task.

My desire was to put the sediment on so thick that I should never see my nightmare—the stiff adobe—any more, to have my orchard top soil so fine that it would never bake, cake or plow up like anything but ashes, and hence ever after to be able to retain a dust mulch six inches deep all through the hot summer instead of the clods I started with each spring, and which, even by fall, were only reduced to smaller clods.



Three-Year-Old Orange Tree at Sunny Slope, Butte County Foothills.



View in the Woodruff Orange Orchard at Redlands.

(Continued on Page 234.)

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CALIFORNIA WEATHER RECORD.

The following rainfall and temperature record is furnished the PACIFIC RURAL PRESS by the United States Department of Agriculture, Weather Bureau, at San Francisco, for the week ending at 5 p.m., February 18, 1913.

Stations.	Rainfall Data.			Temperature Data.	
	Past Week.	Seasonal to Date.	Normal to Date.	Maximum.	Minimum.
Eureka .....	.14	25.01	29.08	56	36
Red Bluff .....	.00	13.21	16.28	74	40
Sacramento .....	.00	5.38	12.92	70	42
San Francisco ..	.00	8.90	15.17	70	44
San Jose .....	.00	3.96	10.88	72	38
Fresno .....	.00	2.79	6.05	74	38
Independence ..	.00	1.81	5.94	64	30
San Luis Obispo ..	.00	4.79	12.75	80	42
Los Angeles .....	.00	4.35	10.14	76	42
San Diego .....	.00	2.44	6.55	72	44

The Week.

We have been occupied most of the time during the last week in making observations of frost injuries in the regions south of Tehachapi and in conversation with those who were on the ground during the low temperatures in the different districts. The general conclusion must be that the injuries are beyond anything conceived to be possible in view of experiences since large scale planting began and the financial losses are proportional. Concerning these general aspects of the facts we need not speak at length for we have upon another page of this issue a carefully prepared review by Deputy State Horticultural Commissioner Merrill based upon more detailed observation and inquiry than it was possible for us to make. Unless some serious error shall be subsequently pointed out, it will probably stand as a fair general characterization of the event.

Several phases of the experience and of the attitude of the people toward it, will be noted in this place as we observed them, without reference to Mr. Merrill's statement, which is not within our reach as we write. One thing which impressed us most deeply was the fact that the low temperature, which was noted at least to 10° Fahrenheit in a number of widely separated places, was not the product of local conditions within the State and was produced by forces which triumphed over the protective features of our environment. The ruling factor was a blizzard too vast and powerful to be affected by our local topography, which has apparently largely controlled distribution of temperatures during previous freezes since the extension of our semi-tropical fruit interest has led men to attach great importance to them. Such phenomena as air drainage, air mixing, lee-side protection, arrested radiation, slow approach of sun-heat, etc., had little to do with the heat-deficiency or the effects of it. Occurrences of frost has always been irregular and indefinable to a degree because of the interaction of such local conditions as just

mentioned, but there has never been, we believe, a visitation which has defied assignment of local causes so completely as do the manifestations which are to be seen this year. The explanation, however, seems to be simple, if the theory of an influx of polar cold is warranted by the observations of the Weather Bureau through the intervening country. Be that as it may be, the fact seems to be that the cold blew in on the wings of mighty wind and blasted whatever tender vegetation stood in its path, sublimely disregarding the local topography, freezing in places which ought to be warm, hitting or missing places which ought to be cold, cutting on the ridges, filling old frost-pockets with warmer air which it pushed before it, killing windbreaks of tall eucalypti or peppers and possibly avoiding more tender trees which they thus saved by their own dying and leaving in its path an astonished people whose property it might take, but whose courage and spirit it could not break.

The Sadness of the Sight.

It is impossible for one who has not seen the path of a ruthless blizzard through a landscape of semi-tropicals to form any adequate idea of the sadness of the spectacle to one who loves plants. The hundreds of acres of low-growing citrus trees wholly robbed of verdant hue and transformed to stretches of yellows and browns is a shocking loss to the landscape, it is true, but even more pitiful to our sensibilities were the changes wrought in the ornamental trees which rose in the discolored citrus seas, as they stood in the semblance of death around the home sites and public parks which they had been invoked to beautify. The silvery sheen of the tall eucalypti, the rusty browns of the peppers, the dark mahogany of the grevilleas, the whole spectra of yellows and browns of the ornamental shrubs which had been brought from all semi-tropical regions to environ homes and public buildings with joyous bloom and verdure during our summer-like winter months—all these impressed us as even more pitiful to the sight than the desolation in the orchards. In a way, too, it was really more pitiful because the belief is warranted that the plants which have chief commercial value and therefore mean more for income, will most quickly return to vigor, beauty and productiveness.

The Orange as a Hardy Plant.

There is reason to believe that the orange will emerge from present distress in a way to increase admiration for it as a hardy plant. There has been some killing outright of young trees no doubt, but so far as our observation has gone up to this writing (and we have seen the work of 9° Fahr.), there will be as a rule only the killing of the smaller wood, the trunk and main frame of the tree, being sound, will soon hide its injury by its new growth of foliage and fruit. Many large areas, which now have the distressful appearance to which we have alluded, will be bearing a good crop of fruit in 1914. Testimony concerning the behavior of the orange everywhere is that it has marvellous recuperative power in terms of fruit after freezing back, so long as its stem and main branches are sound. Of relative hardness of citrus fruits the orange and its near relative, the pomelo, are much alike. The lemon justifies its reputation by much greater suffering, and lemon trees can be distinguished as far as one can see them. They will suffer more and recover more slowly. The olive is very hardy. The trees were bright and sound, even in leaf, in the 9° places, and everywhere they mocked their dun-colored neighbors by their glossy greens. But that the orange should save its wood where eucalypti, some acacias, grevilleas and a host of other ornamental

trees bid fair to go to the ground, if not below, is rather a surprise to one who has not seen much frost work with exotics.

What the People Are Doing.

As we went from place to place and from county to county, one thing was most apparent and delightful, and that was the buoyancy of the people. They have the true California spirit. They will pick their flints and blaze away. There will be much work to do in the orchards and this will relieve much disappointment in the idleness in the packing houses—for those who desire to work for others. The girls may miss their new dresses, but that does not matter so much, for there is less to see by daylight; the tourist contingent is slack and the picture shows are too dark to afford scrutiny of fabrics. The girls will look just as lovely in the reflected glow of the screen or in the moonlight in last year's frocks. Most owners of citrus properties are capitalists in varying degrees and, though there will be individual sacrifices to make in many cases, there will be plenty of money on the whole to pay for the vast amount of pruning and dead-fruit pulling that has to be done. We are not trying to belittle anything. We are simply trying to fitly characterize the manifest bravery and activity of the people, who very well know that all industries have their adversities and permanent prosperity is the product of bearing losses as well as gathering gains.

Cultural Points.

The chief interest of the people who gathered in assemblies aggregating an attendance of about 1,500 per day, to meet the University instructors in discussion, naturally lay in questions of what to do for injured fruit and for injured trees. Dr. H. J. Webber, the new head of the citrus experiment station at Riverside, spoke most encouragingly of his faith in the citrus industry and of suggestions for treatment of injured trees as successfully practiced in the Florida freezes which he had lived through. In general, the advice given was like that already outlined in our columns.

Do not be in too great haste to cut back injured trees of any kind. Allow the tree to show you by its start of new growth the point to which a branch is sound; in fact, do not cut too quick at the break of shoots; wait a little to see if the shoot endures and the line of health and death appears in the bark. But there is much work which can be done at once. The leafless trees disclose their framework wholly. Branches which should be removed for interference or to make the new top less dense, perhaps, can be intelligently cut out at once. Old stubs from earlier rough pruning can be easily sawn close and wounds painted. Sucker growths can be removed. While this is being done, the branches which are to form the new tree will be doing their work and marking the points to which they should be shortened.

There was almost unanimous consent to the proposition that frosted fruit should not be hauled away, but should be plowed in for the good of the land. The souring of the soil by decaying fruit underground was declared a bug-a-boo. One who picks up and hauls away the fruit loses a little humus-making material and wastes the cost of hauling besides.

Do not apply fertilizers on the claim of stimulating the tree. If the ground has been well treated and would have brought a crop of good fruit this year, it is strong enough to re-establish the tree. If the ground has been ill-treated and is poor, fertilization may be desirable; not as a

stimulant, but as a food for the tree. In a cut-back tree the root has the advantage of the top, and has power enough, with adequate moisture available. Excess of quick fertilizer may cause too rank growth and a lot of wasteful sucker growth. Later fertilization may be necessary and would be rational, as shown by the burden of growth and fruit which the tree assumes. Slow and strong growth on a cut-back tree is better than a rush of soft stuff.

Irrigation and cultivation should proceed properly. It is true that less water would be required than for the maintenance of the old tree in proper activity, but every effort must be made to keep the soil suitably moist and aerated by cultivation so that the roots can function actively and grow a good top. To neglect trees which have this work to do is very ill-advised. The whole future vigor of the organism depends upon good forward growth. There is, in fact, a great danger that anticipated restoration may be prevented by neglect, and the penalty will be scant crops of poor fruit and an unsightly orchard.

Whether the fruit should be pulled from the tree or allowed to drop was a question which received some discussion. It is a fact that some varieties will largely drop and others will largely hang. Our own conviction is strong for the removal of the fruit. It may not be much of a burden to the tree, but it is something of a burden. Though frozen and its cellular structure disorganized, it is still taking something from the tree, for it neither decays nor thoroughly dries. Therefore it must have some cell-activity which is sustained by the tree through its months of suspension. We should hurry it under the soil for decay as soon as it is known to be worthless.

Soil-deepening, breaking up plow sole, irrigation hardpan or any other hardening of the soil below the surface cultivation can be done to advantage while the trees are being restored. Ground can be dynamited properly or sub-soil plowed with least danger to the trees because the roots are in the over-balance any way, and root-pruning cannot do injury. To open the sub-soil to water and air and to deeper root-penetration, will tend to improve the property permanently and to arrest the decadence which has been attributed our older citrus plantings.

It thus appears that there is plenty of work to do in the frosted orchards and those who wish to get their properties into better shape, both above and below ground, have an opportunity which was neither asked for nor desired, but which should be seized just the same and made the best possible use of.

San Francisco and Rural Real Estate.

We learn through the city papers of an organization "to identify San Francisco as the focal point for the distribution of all colonization and land activities in Northern California." A number of the smaller cities and towns have been holding land shows annually. It is proposed that the agricultural resources of these and other sections of the State shall be shown in a show which will eclipse and take the place of the smaller exhibitions.

We certainly have no objection to San Francisco's assuming such a position of honor and responsibility in the country land trade if the rural towns do not object and if they think that their interests will be better served in this way than by their local efforts. Certainly a more grandly significant display of products can be made at a great center and the homeseeker can, at much less cost of money and time, see what the State offers him to meet his individual needs and desires. We have, however, an old-fashioned idea that a land

buyer should get as close to the land as possible before he buys. We would have him get on top of it and a certain distance under it, if he can without staying there too long. Some of the great "land shows" have deceived people fearfully. It is easier to fake exhibits and to dispose placards so that the products of choice lands are made to advertise worthless properties. This, however, can be prevented by proper regulations and we shall hope that it will be.

Such an organization should assume another responsibility. It should censor all announcements and rule misrepresentations out of the trade. At about the same time that we read the above announcement of organization we read these words in connection with an offering of farm lands: "The sales-manager has prepared a plan, founded on facts and statistics gathered from the locality, whereby each farm will pay for itself within a period of three years." This means, presumably, a plan which will automatically return a net income of 33 1/3 per cent annually on the investment. Such a scheme needs no characterization: it speaks for itself.

Queries and Replies.

Querists must submit full names and addresses.

Deferring Bloom of Fruit Trees

To the Editor: Have any experiments ever been carried on definitely to decide what causes early blossoming of fruit trees? For instance, have adjacent trees of the same variety been treated definitely by putting a heavy mulch around one to hold the cold temperature late in the spring, leaving the other tree unmulched so the roots could warm up? Do you think that the earliness of blossoming is due more to the root pressure caused by the warming of the soil than to the effect of the warming of the air on the trunk?—H. R., Santa Rosa.

It has been definitely determined by the experiments of Professor Whidden of the Missouri Experiment Station that the swelling of the buds and starting of the foliage of fruit trees is due to the action of heat upon the aerial parts of the trees; that is, growth is not caused by increasing the temperature of the ground and cannot be retarded by cooling the ground. Experiments with the use of snow and ice under trees by which the ground has been kept at a low temperature have not prevented the activity of the tree. The only way known to retard activity is to spray the tree with whitewash so that the white color may reflect the heat and prevent the absorption of it by the bark, which is usually of a dark color and therefore suited to heat absorption. Retarding of growth is possible in this way for a period of six to ten days, which, of course, in some cases might be of value, but the lengthened dormancy is probably too small to constitute it of general value.

Roofing a Manure Pit.

To the Editor: Will you inform me whether it is necessary to roof a manure pit, if the pit is tight so that all rain on manure is caught in the liquid manure and nothing is lost?—S. E., Glen Ellen.

In order to secure satisfactory composting of stable manures in a pit it is necessary to be able to regulate the moisture of the mass. If it becomes too dry, too rapid fermentation takes place and the material is destroyed by what is called fire-fanging. If too much liquid enters the pit, so that the material is probably submerged, the air is excluded and fermentation stops. For these reasons it is necessary that a pit in the region of large precipitation be covered, and that water be used from a hose or other source of supply in just sufficient quantity to keep the material right

for slow fermentation. How much water should be added to bring the moisture to a right condition depends upon how much liquid waste runs into the pit, and where water is used for cleaning a stable care has to be taken that the pit is not submerged. Success with a pit is therefore conditioned on the amount of moisture admitted, and this cannot be controlled unless the pit has a cover fit to shed rainfall. Of course, it may be adjustable so that some rainfall may be admitted as may be desirable.

Asparagus Growing.

To the Editor: Please inform me, through the PRESS, what is the average commercial yield of asparagus to the acre in California? Also, how long it takes asparagus to come into full bearing, and what yield could be expected after two years' growth? Is asparagus resistant to moderate quantities of alkali in the soil?—R. L., San Gabriel.

The yield of asparagus is from one to four tons of marketable shoots per acre, according to age and thrift of plants, etc., the largest yields being on the peat lands of the river islands. On suitable lands one ought to get at least two tons per acre. Roots may yield a few days' cuttings during their second year in permanent place; the third year they will stand much more cutting, and for several years after that will be in full yielding. Asparagus enjoys a little salt in the land, but one would not select what is ordinarily called "alkali land" for growing it.

No Gopher-Proof Fig Roots.

To the Editor: I am going to set out an orchard of Calimyrna figs in Merced county this spring, and is it necessary that the figs should be grafted in some other roots to keep the gophers from destroying the trees? What root should I order?—L. W., Oakland.

Figs are not grown on any other than fig roots and are generally propagated by rooted cuttings for the purpose of avoiding the expense of grafting. The fruit must then be protected by killing the gophers rather than by an effort to get the tree upon a gopher-proof root.

Pollinizing Plums.

To the Editor: Please inform me how many rows of Robe de Sergeant prune trees should be alternated with the French prune (the common dried prune of commerce) to insure perfect fertilization of the blossoms?—M. H., Colusa.

The French prune is self-fertile; that is, it does not require the presence of other plum species for pollination of the blossoms. It is the Robe de Sergeant prune which is defective in pollination and which is presumably assisted by proximity to the French prune. If you wish to grow Robe de Sergeant prunes your question of interplanting would be pertinent, but if you desire only to grow French prunes you need not plant the Robe de Sergeant at all.

Pruning Oranges.

To the Editor: Is it best to prune out orange trees by removing occasional branches so as to permit free air passage through the trees? Some are advocating doing so; but as I remember, the trees in southern California are allowed to grow quite dense, so that we could see into the foliage but very little.—E. O. M., Oakland.

It is a matter of judgment, with a present tendency toward a more open tree than was formerly prescribed. Trees should be more thrifty and should bear more fruit deeper in the foliage-wall if more air and light are admitted. But this can be had without opening the tree so that free sight of its interior is possible. We believe thinning of the growth to admit more light and air is good, but we should not intentionally cut out enough to make holes in the tree.

Sugar Beet Growing in Ventura.

[By Our Associate Editor.]

One of the most ideally situated sections of this State and therefore of the United States for the growing of sugar beets, without doubt is the southwestern part of Ventura county, centering around Oxnard. Beets are grown in large quantities in many locations and climates in this country from Michigan to California and can thrive under widely differing conditions. They are grown in this State, for instance, in the central Sacramento valley and have been and in the future will be grown in Tulare and Kings counties, which in summer climate are radically different from coast sections, either in Alameda, Monterey, Santa Barbara, or counties still farther south.

The Ventura county district, however, is just about at the top when it comes to sugar content, having between 19 and 20% of sugar in the average lot of beets. It is also claimed that the climate gives an exceptionally pure juice and makes possible an exceptionally high tonnage.

The beets are all, except in rare cases, grown without irrigation with an average rainfall of 15 inches, which comes almost entirely between December and the latter part of April. The temperate climate and relatively high humidity during the growing season is such as to make evaporation from soil or leaf proceed slowly, so that a given amount of moisture will last much longer than it would in a hot, dry climate.

The soil has been either deposited by streams or is former ocean bottom, and so is very rich in mineral plant food, and the absence of high temperatures adds to this a large amount of humus.

For beets to grow well, two things besides soil are needed, a suitable temperature and plenty of sunshine. The first makes growth and the second sugar, and the climate of the southern California coast is fine for both.

Heat for some plants is essential for a heavy growth. For beets, moderately cool weather is ideal for a big growth, while intense heat is more likely to wilt the leaves and set back the growth temporarily unless the soil moisture is kept in the best possible condition.

In the spring slight fogs drift over the ground in the mornings and keep things fresh. These disappear quickly and mild sunny afternoons follow, giving occasion for abundant growth and warming up the ground for the night. Then toward the late summer the fogs become much less frequent and continual sunshine and only moderate heat makes all the sugar develop that well could. In this kind of climate there are no disturbing factors to develop impurities in the juice that would make the sugar extraction difficult and wasteful. Thus all things in nature tend to make a big yield, lots of sugar, and put that sugar in a condition where it can be extracted easily and with little loss.

Practically all of the land in the valley is planted to either beets or lima beans. A little is given to either walnuts or lemons and some to barley, the latter usually following beets when the land needs a change. Beets and beans, however, do not compete for the use of land, except very slightly, nor are they used to aid one another in rotation, except under special conditions.

The reasons for this are that beans are so profitable that they are grown wherever a good yield is possible. They also keep on improving the land as they grow, thus making rotation unnecessary.

There is one exception to this. Beans keep on putting nitrogen into the soil and the roots add a little more humus each year. Rarely it happens that such land gets to contain too much nitrogen and the beans go too much to vines and too little to crop, and it is necessary to take away some of the surplus soil vigor. Beets can do this nicely in one season, and on such occasions produce so well that they give about as good returns as beans, and the following year the soil is toned down to be all right again for beans.

In 1911 such a piece of land ran 26 tons of beets to the acre, bringing \$154 to the planter, and other similar fields have yielded still better returns. It should be noted here that this changing crops is for a different purpose than ordinary rotation.

Ordinary rotation is to retain fertility. This is to decrease it.

Still, ordinary rotation has its place. There naturally exist pieces of land that are fairly profitable for beans, but only fairly profitable, though quite profitable for beets. When such land needs a change from beets, it can be planted to beans and give fair returns from these, besides improving the land for beets more than any other crop could. That is about all the real rotation between beets and beans, although the climate is so satisfactory for both. If beans cannot be used in rotation, barley is used instead.

The thing that keeps beans off nearly all the beet land is alkali, as beans can stand little of that substance, although beets can stand quite a little of it. Having only a moderate rainfall, nearly all of the soil contains considerable amounts of alkali salts, though rarely enough to keep beets from doing well, while a large part is thoroughly satisfactory for beans.

Since a heavy soil will hold alkali more than a light one, it is usually the heavier soil that has to be used for beets, while the lighter is better bean land, although a heavy soil that contains little alkali is entirely satisfactory for beans. Low spots also contain more alkali than higher land surrounding it, so it is not uncommon to see a slight depression glistening green with beet tops, while all around it is the lighter green of vigorous lima beans. Many other illustrations can be seen of the way that beans and beets grow close together without really competing for the land.

One interesting feature of the situation is that beets gradually remove alkali from the soil, especially when the tops are taken away and fed. Therefore land that is almost suitable for beans will after several years' cropping to beets, all of the beets being removed each year, gradually become excellent bean land.

Similarly, land that contains so much alkali that it dwarfs beets, gradually improves, at least from the alkali standpoint, when many beet crops are entirely removed, and finally is thoroughly satisfactory for that crop. Ultimately, therefore, it is clear that beets will practically eliminate themselves by improving the land for beans, provided beans always remain as much more profitable as they are at present.

The average crop of beets, taking good and poor land together, runs about 12 tons per acre. This includes land that is so high in alkali that few beets will grow. The amount of land, however where alkali is a problem is quite small, comparatively speaking, and if all land were plowed deeper and weeded better the average crop would be much higher.

On some land, quite alkaline, the beets have tested more than 25%, but the crops there were so low as to be rather unprofitable. The best returns are on the land that yields the largest crops, provided that those crops are the result of proper handling. Most of the record yields, for example, have tested as high as the average for the season, so there is no real conflict between big yields and a good sugar content.

With the usual sliding scale of \$5 per ton for 15% beets and 30 cents addition for each additional per cent of sugar, 19% beets would be worth \$5 plus four times 30 cents, or \$6.20. An average yield of 12 tons would make the gross receipts from the beets \$74.40.

There may also be from \$1.75 to \$3.00 or so received for the tops for stock feed. The buyers to save the trouble of gathering up the tops prefer to pasture, but the growers to prevent the soil from becoming packed often prefer to have the tops gathered and fed. It is doubtful, however, if the loss of manure from removing the tops before feeding does not more than offset the injury from packing the soil. Still others think that the beet tops are of more value to the soil than to the steers. The beets add nothing to the soil and the tops contain a very large part of the plant food that the beets take out. A herd of steers on the land return a very large amount of this plant food to the soil, but still they take away a considerable amount. By plowing in these tops a number of beet growers have found that the land will produce good crops of beets without rotation for

several years longer than if the tops are taken away, which saves some expense of summer fallowing, or of growing barley, or beans, if it is poor bean land.

Nearly all of the beets are grown by American land owners, although the field work, like weeding, thinning, topping and loading is done on contract by Japanese, Mexicans and Hindus, the Japanese comprising about three-fourths of the above.

Occasionally the rains come at times that keep the weeds flourishing, and thinners and weeders who take the job of thinning on contract have a hard time to break even. Other times few rains make the contracts extremely profitable.

As a rule the clean cultivation that is given both beans and beets, which take up nearly all the land in the district, keeps weeds down remarkably well, and weeding is easier than it would be if more diversified farming were practiced. It would, however, be still easier to do if many growers did not try to farm too much land and by so doing let a few weeds start up and keep down the beet crop of the season and spread seeds for that of the following year.

The small amount of irrigation water that is used comes from wells and can spread no seeds; the wind that blows comes from the ocean and will bear none from there, the clean culture crops raised ought to kill off every weed, and then both in soil, climate and cultural ease few districts anywhere could compare with this district for beet growing, and none can surpass it for lima beans.

ARBITRARY VALUATION OF FRUIT TREES.

To the Editor: Can you make a statement showing what value is placed upon trees per acre; a sort of table of values from the time they are planted until they are 20 years old? Would it be, say, first year \$50 per acre, second year \$100, third year \$150, and so on? I suppose after about the fifth year the value per acre would decrease, would it not? I want peaches, grapes, plums, and cherries. R. B. Newcastle.

The best way to get a general statement of the arbitrary value of trees is to apply to your County Assessor, whose office is probably in the Courthouse at Auburn. He has a scale upon which he assesses the value of different trees according to their ages, and to this could be added a certain amount to bring the valuation up to selling values, because assessors are supposed to work at about two-thirds of the selling value. Other than the data in the hands of the County Assessor, we know of no tabulation on this subject. Trees ought not to decrease in value after the fifth year; they ought, on the other hand, if well cared for on good land, to increase in value until the tenth year, if not longer, because our California trees are longer lived than Eastern trees, particularly peaches, plums and grapes, because if properly handled they become more productive as they acquire more bearing wood. The value of a tree in full bearing depends not so much upon age as upon the quality of soil and how well the grower does his protective and promotive duty.

COLORADO WEAKENS ON PEACHES.

We will not see much peach planting in Colorado the coming season, for the Elberta boom has "flown the coop" and thousands of trees will be cut out within the next sixty days. The Denver Field and Farm says: "We are beginning to learn that this is not altogether a safe peach country, and there are so many disparaging disappointments connected with the business that it is no longer attractive. From past experience we cannot advise the setting of peaches very extensively. The crop is too perilous to handle, and is a source of worry the entire year. The crop comes on just after the big run from the South, and generally finds a glutted market with the fruit-jars filled and no especial demand for the later goods. The New York market alone receives something like 7000 carloads of Southern peaches to put up and preserve before we are ready to ship, and as this condition is duplicated all over the East it can readily be seen that our crop is badly handicapped when it goes to market. The last few seasons our peaches have been checked

back in growth in August so that they have not developed fully, and this is a serious drawback to their marketing quality. One man in Delta county the past season had 32,000 boxes from which he was able to ship only 4,000, and he saved money at that by keeping his shooks. Another

man had 40,000 boxes in sight, and of these he got off only 18,000, for which his net receipts were only \$6.54, and this is the reason our folks will not be planting peaches this year. It is a sad blow to real estate boosters, but there is no use of kicking against the pricks."

The Viticultural Industry of California.

[From an Address by HORATIO F. STOLL, Secretary, Grape Growers' Association of California, at the Fresno Fruit Growers' Convention.]

One of the surprises of California, to the people who live outside the State, is the magnitude of our viticultural industry. Even Revenue Commissioner Royal E. Cabell, the governmental head of the service that has supervision of the wine industry throughout the country, was amazed at its extent when he first visited the Pacific slope on a tour of inspection two years ago. "Of course," he said, "I had a general idea of the gallons produced, the number of tons of grapes used, and the various figures that come under my eye through the department, but figures can give no adequate idea of the scope of importance of the wine industry in this region. It needed seeing to grasp it fully."

Like Commissioner Cabell, many other people of the United States have heard much of the grape industry of the Golden West. They know that the State boasts of valuable crops that yield not only the "little wine for the stomach's sake," but the raisins that figure in a hundred different recipes, and the huge bunches of grapes which ornament the tables of our leading hotels.

However, it is not until they have traveled through the greater part of our glorious State that visitors appreciate the fact that the growing of grapes in the United States and the industries based thereon are in a peculiar sense Californian. This State produces nearly all the raisins, three-quarters of the wine and a large part of the shipping grapes. We are also beginning to specialize in the manufacture of grape juice, grape syrup, and grape wine vinegar, and are utilizing the by-products of the winery in the manufacture of cream of tartar, tartaric acid and Rochelle salts.

According to the closest estimates obtainable, there are upward of 300,000 acres in California devoted to grape cultivation. Of this acreage, over one-half, or about 160,000 acres, is devoted to the growing of grapes used exclusively in the making of wine. About 90,000 acres are taken up with grapes intended for raisin purposes, but a large portion of these grapes, especially the second crop, are sent to distilleries for the purpose of brandy making, Muscat flavored brandy being consumed more largely than any other kind in the United States. A portion also of the first crop Muscat grapes is made into a wine called "sweet Muscat," and also into fortified material for the making of sherry. About 50,000 acres are devoted to table grapes, the greater part of which is packed in crates and shipped to the Eastern markets of the United States.

Investment.—The total investment in the grape growing industry of California, including vineyards and establishments for wine-making and storage, grape drying and shipping, is estimated at about \$150,000,000, from which a gross yearly income of nearly \$27,000,000 is derived.

Table Grapes.—The market for our table grapes is constantly increasing. It is estimated that this year the shipments of table grapes nearly reached the 6500 carload mark, and sold for about \$6,000,000. It is safe to say that over one-half of this production came from Sacramento and San Joaquin counties, which, with other sections of the two great valleys and southern California, are the home of desirable table varieties that find a ready sale in the Eastern market.

California Raisins.—Next to the citrus fruits, raisins are the most important single fruit crop of the State. The commercial production of raisins in this State began in the eighties, and one of our great agricultural achievements was the capture of virtually the entire American market within less than twenty years and the production of more than one-half of the Muscat

raisins of the world. Formerly the best bunches were selected and sold in boxes, and the others were stemmed and graded according to size and sold as "loose" or "off stock" at "two-crown," "three-crown," or "four-crown," according to the size of the berry. Since the perfection of the seeding machinery most of the raisins unfit for clusters are seeded and sold in earcons. The raisin industry is concentrated in a few districts. Tulare produces some excellent raisins, but probably four-fifths of the crop is grown within 25 miles of Fresno, which is the great raisin center. Some raisins are produced in the south, notably in San Diego and San Bernardino counties, and large quantities of seedless raisins are produced in the lower Sacramento valley, especially in Yolo county, which, indeed, long antedates Fresno county as a raisin district. Thirteen years ago, 71,567,000 pounds were produced in California. This year our output will reach about 170,000,000 pounds, and will be worth at least \$6,000,000.

The Wine Industry.—But most important of all, from a financial standpoint, is our wine industry, which brings us in a yearly income of about \$15,000,000. Last year, our output was excessive, somewhere in the neighborhood of 50,000,000 gallons, but this year it is doubtful if the vintage exceeded 40,000,000 gallons. The dry wine output is conservatively estimated at 22,500,000 gallons and the sweet wine production, according to figures furnished by the revenue office, will reach about 17,500,000 gallons.

As compared with the immense output of France and Italy, this showing is small, but it must not be forgotten that it has taken those two European countries nearly 2000 years to plant their extensive vineyards and create a world-wide market for their wines. Pliny, who is so rich in precious information on the agricultural and social advances of Italy, tells us that Italy opened her hills and plains to the triumphal entrance of the god Dionysus about 120 years B. C., and the cultivation of the grapes has gone on uninterruptedly ever since. Every generation has poured forth new capital to enlarge its inheritance of vineyards. It is estimated that 25,000,000 of the 35,000,000 inhabitants of Italy are directly or indirectly dependent upon the viticultural industry.

Introduced by the Church.—The vine was introduced into France by the conquering Roman legions, and practically the same conditions as in Italy prevail there, only that the area of grape culture in France is limited to the southern part of the republic, while in Italy there is practically no section where grapes are not grown and wine made.

The viticultural industry of California, on the other hand, is really only half a century old, although the Franciscan fathers planted the grape vine in California shortly after their arrival at San Diego in 1769. As the other Missions were established, small tracts were planted close around their houses of worship. The padres guarded them jealously with high adobe walls, cultivated the vines carefully, gathered their fruit, and made wine which was used in their religious ceremonies, or consumed by the good fathers, their occasional visitors, and their immediate retainers.

Even after the arrival of Americans in 1849, and with them representatives from every civilized nationality on the globe, but little advance was made toward increasing the area of viticulture until 1859, when, through the publication of vine articles in the reports of the State Agricultural Society, and in the newspapers, a general and widespread interest manifested itself in vine planting, and the area of our vineyards became very greatly increased. A very large proportion, however, of these new plantations consisted of table-grape producing vines, and the remainder were

almost exclusively composed of the old Mission variety, which has now practically disappeared from California's vineyard land.

Fostered by Our Legislature.—In the early sixties, our State Legislature sent a commission to secure the finest varieties of grapes in Europe and Asia. This resulted in the planting of better varieties for the table, for the wine-press, and for raisin curing. But it was not until about 1880 that the foreign varieties of grapes were set out extensively, for up to that time there was only a limited few who believed that any grapes could be as good as the old Mission variety which produced an ordinary, coarse, heavy wine, taking an indefinite period to mature.

Through the persistent efforts of a few enterprising viticulturists, small quantities of wine were produced from imported varieties, whose character was so distinctive, and so strikingly showed superiority over those made from the Mission, that new faith in the future of California wines was born, and the belief spread that under proper conditions our State might some day make wine of a superior grade and eventually rival some of the better wines of European countries.

After fifty years of patient, costly, experimental work, and the expenditure of vast sums in repairing the ravages of the phylloxera and Anaheim disease, the great goal has been reached, and today California wines are considered the equal of those produced in any section of the world. Even abroad they admit this, for at the International Exposition at Turin, Italy, last fall, a new brand of California champagne received the "Grand Prix," the highest award which the exacting jury could confer.

While conditions have been discouraging to the wine-grape grower during the past few years, there is no question but that the industry will eventually be put on a stable foundation, and then, instead of pulling up vines, a vast new acreage will cover our idle hillsides and other lands that are practically fitted for nothing else. In fact, as soon as the demand will justify, there is no reason why we cannot plant hundreds of thousands, yes, even millions, of additional acres in grapes.

SHIPPING GRAPES OF 1912.

[From Annual Report of F. B. McKEVITT, Manager California Fruit Distributors.]

Six thousand three hundred twenty-nine and one-quarter cars of grapes were shipped up to November 30th, practically the same as in 1911, shipments for that season aggregating 6327½ cars. It is a surprise to all shippers in California that this large amount of grapes should have been offered for shipment. There was a material shortage in the Tokay crop, caused by the drought and failure of grapes to properly mature in the non-irrigated sections. There was also a very heavy loss from sunburn, caused by a lack of foliage in many of the vineyards. It was presumed that these two causes would materially affect the output.

Large Increases from Fresno District.—We failed, however, to take into consideration the capacity of the Fresno district to ship two or three times as much fruit as had ever gone forward from that section should there seem to be a reasonable chance of favorable markets. The exceedingly low raisin market was another unanswerable argument in favor of shipment, and the direct result of same was that the Malaga shipments from this district, which have heretofore been estimated at about 1200 cars per annum, jumped to a total of over 2500. The crop of Cornichons and Emperors was lighter than last year. Eastern competition in grapes was not as heavy as in 1911, there being a considerable shortage in Michigan, but a full crop in New York. Prices generally averaged better than last year, and have been especially good late in the season for Emperors. It is safe to say, however, that the bulk of the crop was shipped at practically no profit to the grower. Another unfortunate thing in connection with this business is the fact that the minimum billing weight of a crate of grapes was raised from 26 to 28 lbs., which threw an increased burden of transportation, amounting to practically 3 cents per crate, on a variety of fruit that was entirely unable to carry any additional load. The outlook for the

table-grape grower is discouraging. The markets of the United States will not take at a profit the present production in the limited time in which same must be marketed.

Tokays.—A very large percentage of the Tokays produced in the State are grown in one section, and as the time of ripening is practically the same for all vineyards, it makes a very heavy output, which must go forward during about six weeks of the season, which, most unfortunately, comes at a time when the large Eastern grape crops are being moved. As these vineyards are nearly all planted on the best of soil, they can be replaced with orchards of all varieties of fruit and would undoubtedly prove very profitable if planted in prunes or almonds, and the sooner unprofitable vineyards are changed in this way, the better it will be for all concerned.

Packing in Redwood Sawdust.—A new departure has been made in the grape business of California this year by the packing of many carloads in kegs. In some instances they have been packed in cork dust, but redwood sawdust has been much more commonly used. These grapes are expected to meet the competition of the imported Almeria, and, so far as reported, have given the best of satisfaction. Many carloads of Emperors in the Fresno and Tulare districts have been packed in this way. These grapes are suitable for storage and need not be put on the market until early in the coming year. Owing to the fact that large quantities were so packed, the late Emperor market has been relieved of a sufficient quantity so that prices for these late shipments have been unusually high. It is believed that this method of packing will open a new outlet for large quantities of late grapes, and if same is carefully handled, nothing but the best stock from vineyards noted for long-keeping qualities being used, a reputation can be established for this style of packing which will make the future marketing of late varieties profitable, extending the grape season as it will for three months at least.

Standardizing.—The good work commenced last year by the standardizing of the pack in Placer county and some other sections was followed up this year, and much good has been accomplished. It is only a matter of time when the principles of standardization will be adopted all over the State. In years past, when production was small, California fruit of almost any quality could find a profitable market, but with the large increase in production it is difficult to find satisfactory outlets for all the fruit offered. It therefore becomes necessary to select carefully the fruit that is destined for long-distance transportation and ship nothing but the best, and the first step toward this is standardization, simply another name for good quality and honest packing. Much less trouble is experienced in marketing fruit packed in localities where standardization is the rule than elsewhere, and purchasers are not slow to learn the advantage of purchasing fruit shipped from such points.

A very strong effort was made during the past season to prevent the shipment of sour and immature grapes. While not perfectly successful, great improvement was noted, and there were very few grapes that left the State that were unsuitable for consumption. Considerable difference of opinion exists as to the proper percentage of sugar which grapes should contain before they are packed for shipment, and a scientific determination of this point is one of the future developments of the business which will soon be absolutely necessary. The improvement in quality has been noticed at once in improved demand, and, while prices for Tokays were very low during the height of the season, they did very much better than usual early in the season, when the difference caused by the greater maturity was marketed. It is evident, however, that perfection will never be reached in this direction until we have a State law making the shipment of immature fruit a felony and prescribing such severe penalties as will be required to put a complete end to the practice.

smudged or what was located in the few limited areas that escaped.

The greater part of the heaviest citrus producing sections in San Bernardino and Riverside counties was so badly frozen that both orange and lemon crops will be a complete loss. Other sections escaped with less damage. Owing to successful smudging, a large part of the Corona lemon crop was saved. Notable among the sections in these counties that escaped with little damage are the San Jacinto and Rialto districts, and parts of the Ontario, Upland and Highland districts.

Smudging.—As has been indicated in the foregoing, much successful smudging was done. Although the results have been extremely profitable where the work was intelligently and thoroughly done, much money was lost by the growers who fought a losing fight. These growers lost from various causes, among which may be mentioned an insufficient supply of oil or frost pots, permitting the temperature to become too low before beginning operations, and an ill-advised conduct of the battle. Although many types of frost pots were used extensively, sentiment has not yet crystallized in favor of any particular model. Both large and small pots have their advocates. The big objection to almost all of the type in general use are their smutting of the fruit and loss of capacity, due to coking. A concomitant of these objections is poor efficiency. The best pot on the market utilizes but a comparatively small part of the fuel value of the oil consumed. Not only is a large portion of the fuel not consumed and permitted to disseminate itself in the odious smut, but a large portion of the heat generated is lost.

Accurate estimates of the cost of the frost fight are difficult to make just now. Roughly speaking, the cost of the equipment varied from \$20 to \$75 per acre, the exact sum expended depending on the size, type and number of pots used. The cost of operating the equipment has been approximately from \$2 to \$6 per acre per night, the size of this expense depending mainly upon the quantity consumed. Some growers smudged as many as 18 times during the season, so it is safe to say that frost fighting is one of the most expensive operations carried on by the growers.

Orchard Heating of the Future.—Growers with whom we have talked are almost unanimous in the opinion that smoke generated by the present methods is of little or no benefit. They are sure that any appliance that would secure a more complete combustion of the fuel would be a distinct step in advance. In other words, it is orchard heating rather than smudging that is desired. The idea of a control heating plant and some means of conducting the heating of fuel to the place where it is most needed (under the trees) is one that is persistent in the minds of many. Of course, the initial expense is the great barrier to the construction or use of such a plant even experimentally. Just how much a grower could afford to expend on a plant of this kind is a problem difficult to solve. If the yearly cost per acre could be cut in half, the following hypothetical figures for five years' frost fighting campaign, with the present appliance as compared with the control heating plant, would indicate that \$250 per acre invested in a permanent plant might not be prohibited, at least in the case of lemon growers in some districts.

Estimated Yearly Cost Per Acre With Present Methods.—Interest at 6% on equipment, cost \$40, \$2.40; depreciation, 25% per year, \$10; cost of fighting frost eight nights per year at \$4 per night, \$32; interest on the same at 6%, \$1.92; total, \$46.32.

Estimated Yearly Cost Per Acre of 5-Year Campaign With Permanent System.—Yearly interest at 6% on the cost of the plant, \$250 per acre, \$15; depreciation, 5% per year, \$12.50; cost of operation eight nights at \$2 per acre, \$16; interest on the same, 96 cents; total, \$44.56.

The advantages of a permanent plant would doubtless be greater than those indicated above, as the fruit would not be smutted, and with a properly made central plant, the whole crop might certainly be saved, something not often done with smudge pots. Moreover, young trees could easily be saved, a thing that is difficult to do with pots on a cold winter night. Just what form of plant

The Freeze and Frost Fighting.

[By G. E. MERRILL, Deputy State Commissioner of Horticulture.]

Casual readers of the daily press, might conclude from the more or less inspired dispatches, from the various sections of the citrus belt of southern California, that there had been no record breaking freeze, or that at the most, some districts had suffered slightly from a light frost. And yet, the fact that the loss is severe, is everywhere apparent to those who go among the orange and lemon groves.

During the past three weeks, we have been so fortunate as to go into nearly every citrus district of importance south of the Tehachapi, and have had abundant opportunity to note in a general way, some of the frost conditions and effects. Because we believe that it is best in the long run, for all concerned to face the truth, we desire to set forth briefly, the conditions as they appear to us, and to offer a few suggestions to those interested in perfecting frost fighting methods.

Scope of the Damage.—The freeze of January 6 to 9, like all manifestations of the weather, was more or less freakish. Many districts that had before been considered frostless, suffered severely. Others that in former years had been touched considerably, came off with comparatively little injury, and are now cultivating reputations for being so free from frost that any plant of a tropical or sub-tropical nature will grow and thrive there.

The damage has not been confined to citrus fruit and trees alone. In several extensive districts well grown eucalyptus and pepper trees, grevillias and other ornamentals, were killed or severely injured. The olive has not escaped scot-free, and a little apprehension of injury has been shown by some walnut growers, nevertheless, the bulk of the damage has been borne by the citrus growers. Except in a very few favored localities of limited extent, and in orchards that were successfully smudged, the lemon crop is practically all destroyed. Young lemon trees up to three

years old, in not a few instances, are so severely frozen as to be killed or practically destroyed. The old trees also are badly hurt in many orchards. The orange, of course, has gone through it all with materially less damage both to tree and fruit. Yet, in spite of the facts set forth in the foregoing, more fruit has been saved than many persons realize.

The Call by Counties.—For example, R. S. Vaile, the County Horticultural Commissioner of Ventura county, estimates that out of a former estimated total production of 500 cars of lemons for this year, 394 cars, or nearly 70%, are saved and will be shipped. This excellent showing is due to the successful smudging in the greater part of the bearing lemon groves in his county, and to the fact that some of his districts escaped with probably less injury than in some previous years. His estimate for oranges is practically the same, 400 cars out of a possible 605. But Ventura county is comparatively a small producer. Los Angeles county produces many times as much, and has saved perhaps 10% of her lemon crop. A much larger proportion of oranges will be shipped from this county, as fruit escaped injury and as many oranges that were frozen will doubtless remain in a good palatable condition long enough to be marketed. In some Los Angeles districts, notably at Pomona, much fruit was saved and tree damage prevented by smudging. Then, too, in other districts the cold was not severe enough to injure unprotected oranges.

In Orange county many of the orchards adjacent to the foothills escaped with little injury. Just what percentage of the fruit escaped we cannot say, but a considerable proportion of the total crop will be marketed.

The injury in San Diego county was very severe. Practically no fruit escaped in the Chula Vista and Bonita districts. As these places have always been considered frostless, no provision had been made for smudging. Other lemon sections in this county also suffered severely, the only fruit escaping being that that was successfully

(Continued on Page 251.)

Stock List of the Silva-Bergtholdt Co.

FRENCH PRUNES

We have a fine lot of French Prunes in all sizes on Myrobolan Peach and Almond Root. See to-day's stock list; also prices quoted. Trees are first class. Can make immediate shipment. Make your selection at once and place your order with us now.

APPLES.				
All Varieties.				
	Each	10	100	1000
4 to 6 feet.....	\$0.35	\$2.50	\$15.00	\$135.00
3 to 4 feet.....	.30	2.00	13.50	120.00
2 to 3 feet.....	.25	1.75	12.00	100.00

APPLES.				
	4/6 Ft.	3/4 Ft.	2/3 Ft.	
Ingram	140	20		
Arkansas Black.....	945	229		
Alexander	170	115		
Ben Davis.....	170			
Carolina Red June.....	4109	986		
Gravenstein.....	104	48		
Grimes Golden Pippin.....	200	37		
Jonathan.....	560	495		
Mammoth Black Twig.....	392	64		
Red Astrichan.....	739			
Rhode Greening.....	220			
Rome Beauty.....	690			
Spitzenberg.....	1454	107		
Stark's King David.....	882	80		
Stark's Delicious.....	1093	152		
Stayman's Winesap.....	1390			
Wagner.....	200	227		
White Astrichan.....	1892	10		
White Winter Permain.....	1915			
Winesap.....	825	445		
Winter Banana.....	177	100		
Yellow Bellflower.....	352	81		
Yellow Newton Pippin.....	371			
Yellow Transparent.....				

CRAB APPLES.				
	4/6 Ft.	3/4 Ft.	2/3 Ft.	
Hyslop.....	50	39		
Transcendent.....		29		
Yellow Siberian.....	53	37		

ON QUINCE ROOT.				
	Each	10	100	1000
4 to 6 feet.....	\$0.40	\$3.50	\$20.00	\$175.00
3 to 4 feet.....	.35	3.00	17.50	135.00
2 to 3 feet.....	.30	2.50	15.00	100.00
1 to 2 feet.....	.25	2.00	10.00	75.00

PEARS ON QUINCE.				
	4/6 Ft.	3/4 Ft.	2/3 Ft.	
Bartlett.....	16021	7217	1130	
Comice.....	16	196	165	
1/2 ft. Comice.....	10			
B. De Anjou.....	200			
Buerre Boss.....	285			

PEARS.				
All Varieties on Pear Root.				
	Each	10	100	1000
4 to 6 feet.....	\$0.40	\$3.50	\$23.50	\$200.00
3 to 4 feet.....	.35	3.00	21.00	165.00
2 to 3 feet.....	.30	2.50	15.00	110.00
1 to 2 feet.....	.25	2.00	10.00	75.00

PEAR ON PEAR.				
	4/6 Ft.	3/4 Ft.	2/3 Ft.	
Bartlett.....	2900	5195		
1/2 ft. Bartlett.....	4008			
B. De Anjou.....	853	45	320	
Winter Nellis.....	417	156	53	
Gloute Marceau.....	17			

PEACHES.				
All Freestone Varieties.				
	Each	10	100	1000
4 to 6 feet.....	\$0.35	\$2.50	\$16.50	\$140.00
3 to 4 feet.....	.30	2.25	15.00	125.00
2 to 3 feet.....	.25	2.00	12.50	100.00

PEACHES (Freestone).				
	4/6 Ft.	3/4 Ft.	2/3 Ft.	
Early Crawford.....	146	193		
Elbertas.....	1779	1505	284	
Fay Elbertas.....	75		1500	
Foster.....			273	
Late Crawford.....	45			
Lovell.....	1115	300	1208	
Mayflower.....	629	33	56	
Muir.....			54	
Salway.....		714	418	
Strawberry Free.....		203		
Triumph.....	1411	986	103	

All Clingstone Varieties.				
	Each	10	100	1000
4 to 6 feet.....	\$0.35	\$2.50	\$20.00	\$185.00
3 to 4 feet.....	.30	2.25	17.50	160.00
2 to 3 feet.....	.25	2.00	15.00	120.00

PEACHES (Cling).				
	4/6 Ft.	3/4 Ft.	2/3 Ft.	
Levi.....	336	788	228	
Phillip.....	637	329	476	
Tuscan.....	118	92	138	
White Heath.....	132	392	315	

DRYING PRUNES.				
All Varieties on Myrobolan, Peach and Almond Root.				
	Each	10	100	1000
4 to 6 feet.....	\$0.45	\$4.00	\$30.00	
3 to 4 feet.....	.40	3.50	27.50	
2 to 3 feet.....	.35	3.00	22.50	
1 to 2 feet.....	.30	2.50	18.00	
6 to 12 inches.....	.25	2.00	15.00	

PRUNE ON PEACH.				
	4/6 Ft.	3/4 Ft.	2/3 Ft.	
French Prune.....	690	3226	2884	
1/2 French Prune.....	1960			
6/12 in. French Prune.....	300			
Imperial.....	360	362	1258	
Sugar.....			25	

PRUNES ON ALMOND.				
	4/6 Ft.	3/4 Ft.	2/3 Ft.	
French Prune.....		300	186	
1/2 ft. French Prune.....	1650			
6/12 in. French Prune.....	9210			

CHERRIES.				
All Varieties on Mazzard and Mahaleb Root.				
	Each	10	100	1000
4 to 6 feet.....	\$0.35	\$3.00	\$18.00	\$150.00
3 to 4 feet.....	.30	2.50	16.00	125.00
2 to 3 feet.....	.25	2.00	12.00	100.00

CHERRIES ON MAZZARD.				
	4/6 Ft.	3/4 Ft.	2/3 Ft.	
Burbank.....	54	476	236	
Bing.....	36	24	300	
Black Oregon.....	1637	4		
Black Tartarian.....	100	214		
Early Chapman.....	80	14		
Lambert.....	190	370	90	
Royal Ann.....	200	470	886	
Purple Guigne.....	253		58	

CHERRY ON MAHALEB.				
	4/6 Ft.	3/4 Ft.	2/3 Ft.	
Black Oregon.....	134	60		
Black Tartarian.....	283			
Early Chapman.....	51			
Lambert.....	538	22		

SHIPPING PLUMS AND PRUNES.				
All Varieties on Myrobolan and Peach Root.				
	Each	10	100	1000
4 to 6 feet.....	\$0.40	\$3.50	\$20.00	\$165.00
3 to 4 feet.....	.35	3.00	18.00	150.00
2 to 3 feet.....	.30	2.50	15.00	125.00

PLUMS ON MYROBOLAN.				
	4/6 Ft.	3/4 Ft.	2/3 Ft.	
Green Gage.....	46	20		
Burbank.....	816	56	36	
Chinax.....	319		15	
Coe's Golden Drop.....	61	8	30	
Diamond.....	4056		459	
Giant.....	71	427		
Fallenberg.....	110			
Grand Duke.....	2359	12	1008	
Hungarian.....	3379	165	249	
Jefferson.....	166	30		
Kelsey.....	349	36	25	
Santa Rosa.....	200	89		
Wickson.....	236	79	20	
Imperial Gage.....	501	420	57	
Gaviota.....				

PRUNE ON MYROBOLAN.				
	4/6 Ft.	3/4 Ft.	2/3 Ft.	
French Prune.....	5110	527	3202	
1/2 ft. French.....	1462			
Imperial.....			150	
1/2 ft. Imperial.....	400			
Sugar Prune.....	338	13	65	
Silver.....	392	197	930	
1/2 ft. Silver.....	100			
Tragedy.....			368	
1/2 ft. Tragedy.....	120			

PLUMS ON PEACH.				
	4/6 Ft.	3/4 Ft.	2/3 Ft.	
Burbank.....	104			
Clyman.....	282	19		
Diamond.....		240	510	
Fomosa.....	311	124	250	
Giant.....	1767	1297		
Grand Duke.....		94		
Hungarian.....	1633			
Kelsey.....			32	
Santa Rosa.....	101	512		

QUINCES.				
All Varieties on Quince Root.				
	Each	10	100	1000
4 to 6 feet.....	\$0.40	\$3.00	\$17.50	\$150.00

QUINCES.				
	4/6 Ft.	3/4 Ft.	2/3 Ft.	
Sinyrna.....	116			
Pineapple.....	224	218	7	
Van Deaman.....	372			

ALMONDS.				
All Varieties on Bitter Almond, Myrobolan and Peach Root.				
	Each	10	100	1000
4 to 6 feet.....	\$0.40	\$3.50	\$25.00	\$225.00
3 to 4 feet.....	.35	3.00	22.50	200.00
2 to 3 feet.....	.30	2.50	20.00	175.00
1 to 2 feet.....	.20	2.00	17.50	150.00

ALMOND ON ALMOND.				
	4/6 Ft.	3/4 Ft.	2/3 Ft.	
Drake Seedling.....	2153	997	495	
1/2 ft. Drake Seedling.....	245			
1. X. L.....		350	683	
1/2 ft. 1. X. L.....	98			
Jordan.....	1057	274	261	
1/2 ft. Jordan.....	27			
Ne Plus Ultra.....	800			
Nonpareil.....	615		6358	
1/2 ft. Nonpareil.....	16021			
Peerless.....	1388	37		
1/2 ft. Peerless.....	614			
Texas Prolific.....	2806	607	753	
1/2 ft. Texas Prolific.....	1815			

ALMOND ON PEACH.				
	4/6 Ft.	3/4 Ft.	2/3 Ft.	
Drake Seedling.....	590	960	620	
1. X. L.....	1143	249	40	
Nonpareil.....	2653	530	978	
1/2 ft. Nonpareil.....	210			
Peerless.....	218	340	200	
1/2 ft. Peerless.....	20			
Texas Prolific.....	137	420	330	

ALMONDS ON MYROBOLAN.				
	4/6 Ft.	3/4 Ft.	2/3 Ft.	
Drake Seedling.....	120	295		
1/2 ft. Drake Seedling.....	290			
Nonpareil.....	175		490	
1/2 ft. Nonpareil.....	790			
Texas Prolific.....	300	220	260	
1/2 Texas Prolific.....	600			

APRICOTS.				
All Varieties on Apricot, Peach and Myrobolan Root.				
	Each	10	100	1000
4 to 6 feet.....	\$0.40	\$3.50	\$27.50	\$250.00
3 to 4 feet.....	.35	3.00	25.00	225.00
2 to 3 feet.....	.30	2.50	22.50	200.00
1 to 2 feet.....	.20	2.00	10.00	

APRICOTS ON PEACH.				
	4/6 Ft.	3/4 Ft.	2/3 Ft.	
Blenheim.....	180	52		
Moorpark.....	268	66		
Royal.....	206	1988		
Tilton.....	435			

APRICOTS ON MYROBOLAN.				
	4/6 Ft.	3/4 Ft.	2/3 Ft.	
Blenheim.....			300	
Royal.....	279	380	259	

APRICOT ON APRICOT.				
	4/6 Ft.	3/4 Ft.	2/3 Ft.	
Blenheim.....			1195	
Newcastle Early.....	51	66		
Peach.....	930		218	
Royal.....		600	275	
Tilton.....	1052	281	63	
1/2 ft. Tilton.....	10			

GRAPES.				
All Varieties.				
GRAPES (EUROPEAN).				
No. 1 rooted vines.....	Each \$0.10	10 \$0.75	100 \$3.50	1000 \$25.00
Black Ferrara.....				5642
Black Morocco.....				235
Black Prince.....				500
Blue Malvoise.....				230
Cornichon.....				3200
Emperor.....				2213
Mountainbleau.....				6194
Malaga.....				3265
Purple Damascus.....				6763
Rose Peru.....				7187
Muscot.....				500
Thompson Seedless.....				4067
Tokay.....				24861
Seedless Sultana.....				495
Mission.....				2925
Gros. Coleman.....				1219
Black Muscat.....				1000

Live Stock Notes and Comments.

[By Our Associate Editor.]

Since the State Constitution specially provides a recess of the legislature so that legislators and their constituents can mentally digest the mass of bills introduced, it is wise to think about a few of the propositions brought up touching live stock matters. Aside from the dairy bill put up by the State Dairy Association there are one or two other bills that need looking into.

One would prevent the sale of any cattle found to be affected with tuberculosis. It does not provide at all for compulsory testing, but whenever the test was used and some cows reacted they would naturally come under the scope of the law. Also the State Veterinarian is authorized by a physical examination to declare a cow tubercular. This bill on the face of it seems good and there is evidently lots to be said on either side, and if anybody finds special fault he better make the reasons known for his opposition. One of the worst things is the fact that there would likely be more or less publicity in the enforcement and what the newspapers don't do to a dairyman when they get the slightest excuse isn't worth doing. On the whole, since nobody will buy cattle with tuberculosis unless they have good reason for so doing, it looks as there were not great reason for the law and it is a good rule to follow to pass no law that there is not a big need for.

Supervising Cream Tests.—There is another proposition suggested, not by the State Association, which would require every person testing cream and milk to pass an examination with the State Dairy Bureau. There is this to be said in its favor, that testing cream ought to be done just so and many testers in creameries have individual methods of working that are not as accurate as they should be. Putting the testing of cream and milk under Bureau supervision ought to mean better methods, more accurate apparatus and possibly more honest tests. But when you come down to the root of the matter there is the possibility of too much regulation. The present administration of the Dairy Bureau is moderate and is more concerned with helping the dairyman than playing to the public, while new officials in any line are likely to try to show their efficiency by tearing things wide open. Under a good administration the more regulation the better, under a poor one the less regulation the better.

Faults of Official Bill.—In fact if there is any special fault of the Dairy Association bill it is the danger of making too much regulation. It would have dairy commissions appointed in every incorporated town and lots of those commissions will probably be too interested in making a record. If an amendment could be suggested it would be to have no more commissions appointed unless the municipalities so desired and then limit their activities to the lines laid down in the bill. Let the other inspection be done by the State. After all it is best to send for copies of the bills to the Secretary of State and if practical dairymen cannot bring out their strong and weak points, no one can.

Holstein Milk Richer.—The gradually increasing richness of Holstein milk has been referred to before in these columns. It is interesting to note that progress continues to be rapid in this line. The average test of the cows in the latest report of the Holstein Friesian Association is 3.56, much higher than the breed was supposed to do. Yet it is noteworthy that nearly all the leaders were well above this average. The leaders in two of the classes tested well over 4 per cent milk, in all but one class 3.68 or better, and only in the aged cow class did the best producing cow give milk that contained only 3.3 pounds of fat per hundred pounds of milk. The average test of the leaders was 3.83 per cent fat.

Ayrshires Doing Nobly.—The Ayrshire breeders are also doing nobly. It was once said that the Ayrshire was especially adapted for milk production. The latest list of records indicates that this breed is well entitled to be called butter pro-

ducers. The average Ayrshire cow gives milk that is the barest fraction less than four pounds of fat per hundred pounds of milk and in the different ages the old cows given yearly tests produce about 415 pounds of butter fat per year, the four-year-old form 377.7 pounds, the three-year-old form 335.6 pounds, the two-year-old form 322.1 pounds. The way that all the dairy breeds are doing shows just one main thing and that is that it is good breeding, the culling out of poor cows and good care that gives such results as are recorded. With these examples before us continually the advantages of breeding, selection and care are too apparent to need remark.

Thoroughbreds in the Running.—The automobile may be here, the drafter may hold our admiration at the State and county fairs and as a sire for the farm colts, but the Thoroughbred is still in the running and is running strong. The Woodland Stock Farm, Yolo county, has just received ten of the finest brood mares that were put up at the great Old Glory mid-winter sale at New York and a number of others are to arrive the first of the month. An announcement has been made by D. O. Lively, Chief of the Live Stock Department of the Exposition, that arrangements are rapidly being made for the finest racing meetings ever held at a World's Fair. Plans are also on foot in which breeders of Thoroughbreds, Standard breeds, Morgans, Arabians, Hackneys, American Saddle Horses and Hunters will be interested. The draft breed associations like the other breed associations are making great preparations.

Among the sheep breeds the following associations have made appropriations for awards: Hampshires, \$1,000; Rambouilletts, \$1,000; Cotswolds, \$500; Delaine-Merino, \$500; Dorsets, \$500. Hampshire Swine will have \$3,000 to divide from the breed association, Berkshires \$2,000 and Yorkshires \$500. This is aside entirely from the prize money offered by the Exposition and by the several States, and while we are on that subject, the bill appropriating money for prizes to California breeders is up before the legislature and a person don't have to be a pure bred man to see that California breeders and California agriculture is treated properly. While interested in the other bills it is up to us to see that this appropriation goes through.

WHY NOT A CONTINUOUS STOCK SHOW IN 1915?

[Written for the PACIFIC RURAL PRESS by
PROF. G. H. TRUE, University of Nevada.]

It has always seemed unfortunate to the writer that the managements of the great International Expositions have not in the past worked out some way of making the live stock feature of the show, like other important features, as permanent a part of the Exposition as any. Ninety per cent of the people who attend expositions are as much interested in live stock as in any exhibit featured by the management, and yet their opportunities to see exhibitions of such outstanding animals as these great shows present to the public are confined to one or two weeks of the show, and but few of the fair visitors are able to be present during that time. In this way one of the greatest opportunities for education is not taken advantage of by the exposition management, and a majority of the attendants at the exposition feel that they have been forced to miss one of the greatest features of the show.

The contests participated in by the representatives of some of the dairy breeds at previous expositions have been of great interest and have attracted many visitors. The breed associations are not enthusiastic over the results of the contests, however, and there is a strong feeling that they have not been worth the price to the breed interests supporting them. There seems to be no very good reason why this more permanent form of an exhibit should be confined to the dairy breeds of stock.

Every stock breeder on the Coast is interested

in the coming show of live stock at our Panama-Pacific Exposition in 1915; we all want to see it the best show of its kind ever held and under the competent and energetic leadership of Superintendent D. O. Lively, the stockmen of the Coast should make every possible effort to this end.

In connection with the consideration of this matter, I wish to suggest a plan for a live stock exhibit that is somewhat new. The plan is simple: It is that there be maintained throughout the exposition, in buildings built for that purpose, exhibits of model flocks, herds, and studs of the various breeds of pure bred animals, these exhibits to be under the charge and management of their respective breed associations, and the buildings in which the animals are shown to be equipped with rooms suitable for the exhibition of the animals in the presence of small audiences, before which daily demonstrations may be given by some representative of the breed in charge. In this way a school in animal husbandry would be conducted throughout the fair.

This plan has been suggested to some of the breed association officials and they agree to its educational value, the only objection being the cost. All good advertising and educational work costs money; the main thing to be considered is—does the result justify the expenditure?

In this case the expense to the breed associations, that for the maintenance of the animals and the salary of the instructors, should not be excessive. The herds should be made up in accordance with the regular show yard classifications, the various ages being represented.

From the point of view of Coast breeders this should be a most desirable plan, giving them, as it would, an opportunity to contribute to the show herds and thus secure deserved advertising. I believe that in an educational way more good would result from such an exhibit than from all the live stock exhibits held in connection with previous expositions in the country. This feature should not take the place of the regular live stock show but be an additional feature.

Reno, February 7, 1913.

BEEF-MAKING IN ARIZONA.

If the tariff-tinkers do not kill our beef industry by opening the door to free cattle from Mexico, Arizona will probably realize tremendous development of her beef resources. The Progressive Farmer gives very interesting facts about the Salt River beef industry.

The Salt River Valley, owing to its location contiguous to the large grazing areas of northern Arizona and New Mexico, is the natural fattening ground for the thousands of range cattle that are marketed annually, hence all over the valley may now be seen immense herds that have been brought here to winter and finish for the market on her fine alfalfa fields.

Another feature that commends itself to the stockman is the fact that here stock grows twelve months of the year, while in the more northern latitudes there are about six months out of the twelve in which stock does not gain a pound and often comes out in the spring in much worse condition and lighter weight than they were six months before, while those wintered in the Salt River Valley come through fattened ready for the market, never having eaten a mouthful of grain in their lives. Add to this fact that by reason of our mild winters our stock growing the year round, can be marketed a year younger than those farther north where the inclemency of the winter weather has retarded their growth, and you will understand why the Arizona stock raiser has the advantage of his northern rival.

By the introduction of thoroughbred sires the range cattle have been so improved that they will compare very favorably with those of the more eastern states, and the day of the longhorn and scrub is numbered.

Chief among the range cattle is the Hereford, which combines in a marvelous degree the traits of the hardy rustler and the beef properties of the shorthorn, and for stock raised and kept in the valley, the shorthorn and Angus have no superiors.

One of the bright features of the situation at present is the remunerative prices which, owing to our climatic conditions and the absence of disease, our cattle men are realizing from their sales.

The Egg Market and the Dealer.

[By OUR ASSOCIATE EDITOR.]

In the poultry department this week there will be found a criticism of the way the poultryman is being treated in the city markets. One of the things referred to is the address by a San Francisco dealer, E. C. Camm, at the Petaluma banquet. Mr. Camm later repeated his talk before the San Francisco Wholesale Dairy Produce Exchange, the writer being probably the only person present outside of the members, and the information given there was without doubt fair and unbiased. The figures he used and which are given below were compiled from five years' records and should be valuable in letting in a little light on the marketing situation.

These figures show that the production in the territory supplying San Francisco and vicinity has increased 80% in five years and that the price has fallen but little. (The profits may have decreased to a very great extent, though.) It also shows that the amount put into cold storage has increased greatly, though not much faster than production. Even so, the proportion of the eggs that go into storage is still comparatively small. In fact it will be much less next year, as the dealers lost money on their storage eggs this season and had to sell them at prices which would take them off their hands before the spring production began. That is one reason why all egg prices went bad this winter. Fortunately the storage eggs are so well sold now that there is little danger that they will injuriously affect the market after this.

These figures also show that there is so little margin of profit in egg production that it hardly pays to import eggs from the East any more, for while local production has increased greatly, Eastern imports have actually fallen off.

One thing that will be misleading in these figures is the average quotation for eggs. By this, the quotation of a week in winter, when few eggs are received, is balanced up against a quotation of late spring, when the hens are producing the hardest, and it would tend to indicate a bigger average price to the poultryman than he actually gets. A quotation is about a cent and a half below wholesale price, and about two cents more than the producer gets.

It is the opinion of the writer that there is little if any manipulation of the egg prices by the dealers, especially by means of the Exchange, that variations of price are really due to temporary or general "supply and demand." At least the whole system of egg dealing, likewise butter and cheese, in San Francisco tends toward the determination of a price according to the real state of the market, and would work against artificial raising and lowering of prices. There is no reason for going into detail on the reasons for this belief, but it is utterly beyond question that the present method of determining a price is vastly superior to the method of no organization whatever and letting each dealer go on in his own way of deciding what he would ask his customers and pay to his shippers.

A REAL WEAKNESS.—If a person wants to get to the bottom of the matter he will find one of the most discouraging features of the whole matter is that so many people, in every walk of life, think that they will be all right when they get a small place and raise chickens, that any man can raise chickens with little work and less experience. The result is that, aside from the actual profits possible at any time, there are hundreds of people bent on living easily off hens. These lower the profits of those who are in the business permanently and know what

they are doing.

There is big room for improvement in seeing that the best quality of eggs only get to the consumer, that there is no unnecessary delay in handling with resulting deterioration, and that the consumer gets what he wants. That means a greatly increased demand and better prices. But the "manipulation of prices" seems to be about as minor a question in San Francisco as it can be. Mr. Camm, in his talk before the other dealers, stated that his firm made less profit from their egg business than from butter and cheese; that of the three products, eggs were the least satisfactory to handle. We trust that this is not a confidential statement and that the same thing could be said for the average dairy produce dealer.

The figures showing the amount of eggs handled in San Francisco and the way they were handled follow. A few figures on butter accompany them.

EGG RECEIPTS, SAN FRANCISCO, LAST 5 YEARS.

Average S. F. quotations.		
Year.	Cases.	cents,
1908	347,480	31.68
1909	348,152	36.62
1910	468,182	31.74
1911	587,996	30.70
1912	635,192	29.86

Increase in five years, 287,717 cases; actual increase in production, 80%; average quotations for five years, 32.12 cents.

COLD STORAGE WAREHOUSE HOLDINGS IN SAN FRANCISCO.

Year.	Cal. eggs.	Eastern.	Total.
1908	35,588	12,588	48,176
1909	50,446	7,372	57,818
1910	46,874	15,438	62,312
1911	58,256	16,338	74,594
1912	97,148	5,707	102,855

Increase of 1912 over 1908, 54,679 cases, or 110%.

The holdings in warehouses in California, north of Los Angeles and outside of San Francisco were in 34,000 cases in 1908, and 67,000 cases in 1912, practically 100% increase.

Cold storage Eastern eggs in San Francisco warehouses were 12,588 cases in 1908, or 25% of entire holdings; 5707 cases in 1912, or 5½% of entire holdings.

The proportion of receipts that go into cold storage were: San Francisco receipts for 1912 were 635,197 cases; in cold storage in San Francisco, 1912, 102,855 cases; showing 16 1/5% of receipts were put in cold storage.

BUTTER RECEIPTS AND COLD STORAGE STOCKS, SAN FRANCISCO, LAST 5 YEARS.

Year.	Receipts, lbs.	Maximum amount in storage, lbs.	Percentage in storage	Average quotations
1908...	13,803,820	2,105,188	15	27.58
1909...	14,449,300	1,880,247	13	30.25
1910...	13,921,900	1,917,082	14	31.37
1911...	20,992,750	2,543,071	12	27.12
1912...	24,759,600	1,532,238	6½	31.20

Increase in butter receipts in last five years, 10,955,780 pounds, or 79%; decrease in storage holdings in last five years, 572,950 pounds, or 27%.

The comparative cold storage holdings north of Los Angeles and outside of San Francisco in 1908 were 790,000 pounds; in 1912, 270,000 pounds. Decrease in holdings in the last five years, 520,000 pounds, or 65%.

Few people can be as smart as a new brakeman thinks he is.



What do You get out of the Ground?

WHAT WERE LAST YEAR'S PROFITS?

Did your neighbors have bigger and better crops than you? Just how much did your ground produce for you? If your annual ground yield didn't come up to your expectations have you found the reason for the deficiency? Ever consider the fertilizing end of your business?

Your horses can do a better day's work on a feed of grain than they can on a diet of alfalfa. What kind of a food do you give your soil?

Let us tell you about

Hawferco Fertilizers

they're the most substantial and scientifically prepared earth food ever brought to the attention of farmers. They put strength and ginger into the soil and make it "stand up" to the hardest strain.

Why not try these wonderful fertilizers? There's one for every purpose and each one is the very best of its kind.

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WRITE US NOW AND WE'LL GIVE YOU SOME INTERESTING FERTILIZING INFORMATION. ADDRESS

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SAN FRANCISCO



CITRUS Trees

WE STILL
HAVE A GOOD
LINE OF

Navels
and
Valencia
LATE
ORANGES

ABSOLUTELY UNTOUCHED
BY FROST

Our stock is grown under ideal soil and climatic conditions, and is straight, clean and thrifty.

Write us for special
prices on large orders.

In addition to growing all the best varieties of oranges, lemons and pomelos, we also carry a complete stock of

DECIDUOUS FRUIT TREES

in nearly all the most wanted varieties.

PECANS AND ALMONDS

We have a fine stock of these popular nuts and invite your inspection and inquiries.

EVERGREENS AND ORNAMENTALS.

In our Laguna Nurseries we carry a fine assortment of ornamental trees, shrubs, vines, plants, palms, roses, etc.

Write for Prices, or—
Call and see us.

ROEDING & WOOD

NURSERY CO., Inc.,

1617 E. Washington St.,
Los Angeles, Cal.

Take Hooper Avenue yellow car to Washington Street and walk 2 blocks east, or take Watts local direct to nursery yards and offices.

EUCALYPTUS

We have our usual stock of high-grade trees, to which we invite correspondence of intending planters.

W. A. T. STRATTON

Petaluma, Cal.

THE PROBLEM OF HARD SOIL.

(Continued From Page 225.)

My law—Nature's law—said unto me that trees must have air and water all through the summer. The air could penetrate this top-dressing of sediment and at the same time the water could drop down through it to the red soil beneath, the sponge-like character of the sediment having the effect of spreading the moisture over every inch of the red. Formerly a stream the size of a lead pencil would reach the far end of the irrigation furrows in two days—now it is six days getting there. Hence I now run streams three times as large as before and can store more water in two days than I was able to get into the ground before in three.

Under the old regime I had to watch my stiff adobe soil as a hawk watches a chicken and pounce upon it with the harrow at just the right moment; otherwise I found it so hard that no implement would feaze it. Now I have to wait a week or ten days, even in July and August, before the ground is dry enough so I can go on it with the harrow, and four or five days more before it is dry enough to cultivate.

For 15 years my ground would not retain sufficient moisture to prevent the trees from sending out the distress signal—curled leaves—in three weeks time, with a resultant check in their growth every month throughout the summer. This summer, 1912, with a double crop of valencias on the trees, they went from September 1 to November 15 without irrigation and the ground remained so moist that I could take soil from a depth of three inches and ball it—and the ripe oranges remained as firm as they were in June. Where five years have elapsed since the top dressing was applied, my trees have doubled in height and spread.

During these five years the crop from these trees has averaged as follows: 3½, 4½, 5½, 7½ and 6 boxes, and the coming crop promises to reach 10 boxes per tree. My neighbor across the arroyo, 10 to 15 feet away, and with the same soil conditions that I formerly had, averaged one box per tree for two successive seasons and then sold his grove—a fine building site—for \$1500 per acre, while I had refused \$2500 for mine. The purchaser had me put three loads of sediment per tree in his grove and this year's crop averaged 3½ boxes, the trees at the same time making a thrifty growth.

I am convinced that this layer of loose soil on top of the adobe doubles the efficiency of all fertilizer applied because it prevents the soluble parts from being carried away in the waste water. The original soil was actually dead and so compacted and devoid of humus that the beneficent bacteria could not live and work in it.

Hanford Nurseries

CLARKSTON, WASH.

TREES

That will Grow.
That are True to Label.
That are Free From Disease.

By arrangement with the Vineland Nurseries Company, we offer a limited number of

Red Gravenstein

Apple Trees for Fall Delivery.

See what Prof. E. H. Van Daman says of this wonderful new apple

"For two years past I have seen the Red Gravenstein Apple at some of the fruit fairs in the West, and among them the National Apple Show at Spokane. I have also eaten it, and it is a true Gravenstein in every particular except color. In this respect it far surpasses the old variety, because it is almost solid red and exceedingly attractive. I think this difference will cause it to sell even better than the common Gravenstein, from which it is a bud-sport."

Hanford Nurseries

CLARKSTON, WASH.

Drawer 6.

AGENTS WANTED

HARDIE SPRAYERS



The Sprayer with the trouble left out.

Power Sprayers, Barrel and Bucket Pumps, Rods, Nozzles, Hose, etc.

Catalog.

THEO. POINDEXTER, State Agent
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WALNUTS

GRAFTED FRANQUETTE WALNUTS

If you want the best of anything, go to one who specializes in that thing. After nine years' improvement, we are offering the best that can be produced in the walnut line, using grafts from the heaviest bearing trees of the Vrooman Strain and grafting on the sturdiest and most rapid-growing yearling Royal roots. If interested in walnuts, send eight cents in stamps for price list and catalogue.

IMPERIAL WALNUT NURSERY.

R. F. D. No. 7.

San Jose, Cal.

Stump Pullers

CALIFORNIA STUMP PULLER CO., 704 Bryant St., San Francisco.



PERFORATED TREE PROTECTORS

TO CITRUS GROWERS, if the recent frost has caused the leaves on your young trees to drop so they will not protect the body from the hot sun, which will spoil a good many of them if not protected, let us supply you with wraps for them. Others are going to do it, why not you? You can't afford to let your trees go unprotected when for about a cent each you save all of them.

Also a word to you who are planting deciduous trees.

Last season we sold over a million Perforated tree protectors, and they find it was money well spent. You know that rabbits, hot sun, sand storms, raking of bark in cultivation, etc., always causes a loss that will many times more than pay for the Perforated protectors to protect your whole planting. Let us sell you Perforated protectors. We have the only Perforated ones made. Write for sample and price.

The Expan Protector Co.

935 Central Ave., Redlands, Cal.

STRAWBERRIES

Grow Your Own
the Kellogg Way

KELLOGG'S BIG RED strawberry garden will produce all the strawberries your entire family can eat, summer and winter, at a cost of one cent per gallon. It contains extra early, early, medium and late varieties. All heavy fruiters. Berries extra large, sweet and delicious. You can have fresh strawberries and cream, shortcake, preserves, jam and canned berries the year round. Help yourself and eat all you want.

LET US RESERVE A GARDEN FOR YOU before they are all sold. Our special delivered price is less than \$3.00. This garden will yield about 500 quarts of berries each season, and with good care will fruit for three years. When it is time for you to make garden, we will deliver your plants prepaid, all pruned and ready for setting.

OUR BEAUTIFULLY ILLUSTRATED BOOK of instructions, our thirty years of strawberry experience and full information about the Kellogg Way of making a strawberry garden is yours for the asking.

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To Any Orchardist

A practical booklet on up-to-date methods and principles of pruning all kinds of orchard trees, by L. H. Day, Horticultural Expert.

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"STAR ORCHARD LADDER" The strongest, lightest and best orchard ladder on the market, at any price. 3536 Peralta Street - Oakland, Cal.

100,000 Sour Orange Seed-bed Trees

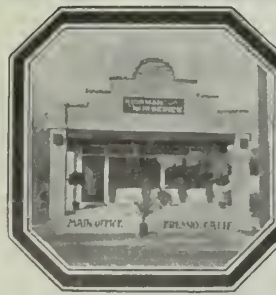
Navels—Valencias—Tangerines

SOUTHLAND NURSERIES,

R. D. 1, Pasadena and Terra Bella.

Tulare Co., Cal.

F. H. DISBROW, Prop.



KIRKMAN'S RELIABLE TREES



We are indebted to our many patrons for the most successful season in our history.

The last of our orders are now being packed and many gratifying reports have already been received from customers who have already received their stock.

For those who have not been able to get ready to plant earlier, we have packed a few carloads of fruit trees in a refrigerated packing house and will be able to deliver thoroughly dormant trees until this lot is exhausted.

Let us hear from you right away if you think you will be able to plant this season.

2525 Tulare St.

KIRKMAN NURSERIES

Fresno, Cal.

WILL IT PAY?—I consider that this treatment has increased the value of my land \$1000 per acre on an income as well

as on a selling basis. I have doubled and trebled my yearly crops and am now getting \$300 to \$400 more per acre from my grove than I got at any time during the first 15 years. My trees are bearing more heavily as they grow older, while in southern California generally they are failing. The successful merchant puts in more capital in order to double his sales under the same yearly overhead expense; should not the orange grower adopt the same tactics? Any orchardist with soil like mine can afford to pay from \$1 to \$2 per load for sand or silt to put on it. The increase in the returns from my grove is equivalent to 20% interest on \$600 per acre. I made \$400 more per acre from my grove than my neighbor when he had one box and I had 5½ to the tree. Guess how much more I made last year when my average was 7½ boxes while his (the untreated portion) remained at one.

In a word, I may summarize the results attained by saying that the blanket of sediment saves water, saves labor in cultivating, saves fertilizer, and turns comparative failure into tremendous success by making a dozen oranges grow where only one or two grew before.

CIDER VINEGAR.

To the Editor: Reading in the papers about the apple industry, if they grow so many apples on the Pacific coast and so many go to waste, why or how is it there is no apple vinegar in our market, or at least in southern California? There is only one kind or quality of vinegar in southern California, and it is made of bad stuff.

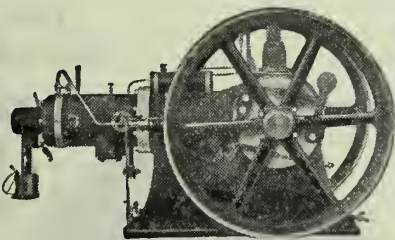
If the farmers had a show over rotten manufacturers they would not put up such a vinegar, for the farmers' wives in the East put up good vinegar, for the hot sun cures it in the barrel under the open sky if they have no better place for it.

Corona.

READER.

[There is plenty of cider vinegar made on this coast; in fact rather more than can be profitably sold, and therefore the profit from farm vinegar-making is not assured. Of course, the housewife can make her own vinegar in California quite as well as at the East—if she desires to do so.—EDITOR.]

USE CHEAPER POWER



The price of gasoline is advancing! Why not keep your power cost down by using a cheap fuel oil in a

MUNCIE OIL ENGINE

and save from 20 to 60 per cent of your money, aside from 75 to 90 per cent of the vexatious troubles experienced with gas engines? Write for the catalog. Tell us if you will buy a pumping plant this season. A copy of "ECONOMICAL IRRIGATION BY PUMPING" will be mailed free if you ask for it.

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Will cut tall grass, short grass and weeds and do all the trimming along the fence, walks and drives. If your dealers do not keep them, let us know and we will send circulars and prices.

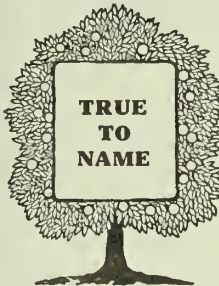
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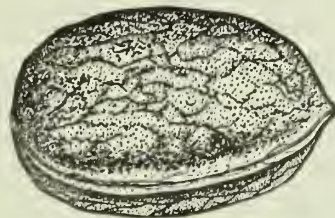
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Our stock of all the best varieties is so complete that it is hardly necessary to name them.

Write us for quotations on Apples, Apricots, Olives, Plums, Pears, Peaches, Lemons, Oranges, Pomelos, Figs, Grapevines, Chestnuts, etc.

Grafted Walnuts



Our superior method of grafting these trees guarantees our stock.

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We also call your attention to the new variety—"CONCORD"—originated in Contra Costa County. It is well adapted to the Coast regions—an immense producer—blight resisting. Our surplus is limited. Get your order in now for future delivery.

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WE HAVE A MAGNIFICENT ASSORTMENT OF ORNAMENTAL TREES, VINES, SHRUBS, PLANTS, EVERGREENS AND HARDY FIELD-GROWN ROSES. GET OUR CATALOGUE OR WRITE US FOR SUGGESTIONS.

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15-30 h.p.

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It's fit for almost any kind of power work—plowing, harvesting, baling, sawing, hauling, building roads, etc.

On a 160-acre farm an OilPull will show a profit—on a 240-acre farm you can keep it busy all the time. The OilPull is a handy, durable tractor—it burns cheap fuel and really costs less to run because it lasts longer.

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Ukiah Farmers Club Statement.

[Written for the PACIFIC RURAL PRESS.]

All over the State and country the subject of getting higher prices in selling and lower prices in buying through co-operation is arousing interest. The Farmers Club of Ukiah is one of the farmers organizations that is cooperating in buying, and recently held its first annual report and examination of results, showing what can be accomplished in spite of the difficult navigation among the rocks of inexperience, lack of capital, opposition of local merchants and the personal differences of opinion among members that confront every cooperative organization.

The club was first organized merely

as a club, a year and a half ago, but soon started work improving marketing and economic conditions in the vicinity of Ukiah, and achieved such success that the plunge into cooperation in buying goods for the members was made last January.

The funds came from membership fees, \$2 each, and club dues. The directors were also authorized to borrow up to \$5,000 from members at eight per cent. Only a fraction of this amount, however, was borrowed and the club worked on rather scant sums.

All kinds of merchandise was purchased for the members at wholesale prices, plus freight, warehouse charges and 3 to 5% commission, which latter was to pay salaries, office expenses, etc. This commission, it is found, was a little smaller than it should be and recommendation is made that it be increased to about 7%.

RESULTS.—The result of the year's operations, or rather 11 months operations, was that the 150 members saved about 30% on purchases of groceries, hardware, farm equipment, etc., amounting to between \$25,000 and \$30,000. The auditor reports that the management has been capable, honest and efficient, and that the saving could have been even greater if a little more capital had been available, or if the whole \$5,000 had been borrowed. That is a hint for other similar organizations. And then after all is said there is a clear gain of more than \$550 for the club, in other words, a membership fee of \$2 has grown to worth more than \$4. The club weathered the storms that beset the first year's voyage of every such institution, saved over a fourth on all goods handled, this shows it can save still more and has a little surplus cash and lots of good experience to start the following year.

THE FUTURE.—The manager, C. A. Bernhard, formerly instructor in the commercial department of the Ukiah schools and also a fruit grower, makes some plans for the future. He says:

"What we want is one big, strong organization which is the joint property of all of us, and so managed that no man or bunch of men can wreck it. It would be my idea that this should be a large mercantile establishment. In the front I would fit up the very best offices, and make the offices a farmers' lobby where men could come together around the stove in the winter and thrash out their problems and visit. I would also have a room set apart for the wives and children.

"This organization should be made the selling organization of the whole community. Not only fruits and live stock should be handled, but we should learn how to handle the hop crop.

"We cannot do this all at once, but if we plan right, building a big strong foundation, within ten years we can easily have a \$100,000 organization. Let's all get right behind it, sacrifice a little, get the money it needs, watch it carefully month by month and just make it grow."

BLUE GUMS

IN FLATS

\$1.25 per 100; \$10.00 per 1000.

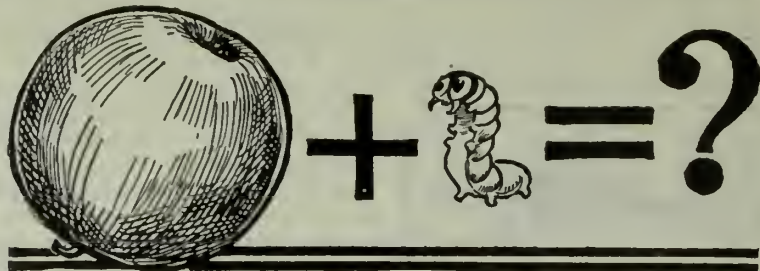
Also roses, fruit trees and other nursery stock.

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Colma, San Mateo Co., Cal.

LEONARD COATES NURSERY COMPANY

Plant Almonds or Walnuts. Safe investment. We have the best varieties. They thrive in many soils. Please call, or write to us at

MORGAN HILL, Cal.



I S FRUIT growing a gamble with you, Mr. Orchardist? Are you continually wondering if your crop of fruit will be big and clean? Why not do away with this uncertainty? Use

Universal Orchard Sprays

They penetrate. They go deep into the bud clusters and kill the eggs as well as the insect. The result is a big and clean crop of delicious fruit. We want you to try these wonderful sprays. Once you use them you'll never have any other.

OUR SERVICE DEPARTMENT will freely aid those having trouble with their Orchard Pests. In writing give fullest details.

Insecticide Department—PAUL R. JONES, Entomologist

Write for Our Free Book on Spraying

Balfour, Guthrie
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BY THE OLD AND RELIABLE SMYRNA PARK NURSERIES

Apple, Cherry, Peach, Pear, Apricots, and Figs a Specialty.

VERY SELECT TREES

BE SURE AND WRITE US BEFORE ORDERING YOUR FUTURE SUPPLY OF TREES

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Good commercial orchards are money makers, good Trees are necessary to make good orchards. I grow good Trees. Write me your problems or needs, I can help you. Big Free Booklet describing "TREES, SHRUBS, VINES & PLANTS" will help you greatly. Get it at once. Please mention this paper.

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STAYS IN SUSPENSION
HONEST PRICES
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15% Arsenic Oxide guaranteed.
Send for booklet and prices.
Full stocks carried by Coast Agent,

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THE GREATEST WALNUT IN EXISTENCE.

THE EARLIEST HEAVY BEARER.—The original tree, now 11 years old, has borne 9 successive crops. Trees now 5 years old have borne 5 crops of nuts (6 years from grafting).

Large, Blight-Resistant, and Finest Quality. Stock of trees limited. Write for prices.

ALSO GENUINE FRANQUETTE WALNUTS. All stock grafted on California Black.

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MR. FARMER:

You can't afford to buy a traction engine without getting all the facts about the "BEST" San Leandro Gas Tractor. Write us today. Catalog for the asking.

THE BEST MANUFACTURING CO.,
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The Farm Must Hold the Young Men.

To the Editor: I heard a man say a while ago that he had made a careful investigation of the men who had achieved success in a large Southern city, and that ninety per cent of them had been bred on farms.

To him it was a matter of pride and gratification, but I will confess frankly that the statement shocked and saddened me. I knew in a general way that our cities were absorbing too many country boys, but the thought that the brains, energy and power of a great city had been achieved at the expense of the farms was startling. In it, I saw one of the main reasons why farming was falling into decay, and farm lands were in alien hands.

19 New Varieties Ettersburg Strawberries

PRICE LIST			
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Ettersburg No. 80.....	\$1.25	\$5.00	
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Send for catalogue describing all the above varieties.

ALBERT F. ETTER

Etterburg Experimental Place,
Briceland P. O., Cal.

We hear and read a vast deal these days about conservation, but to my mind the most vital thing in America today is the conservation of our young men on the soil. It is old and trite to say that a nation's prosperity is measured by its agriculture, but it is profoundly true nevertheless.

There are a thousand issues over which our statesmen concern themselves and with which they whip the people into frenzies of political fervor. But they are not striking at the heart and soul of the most vital problem of the day. These questions are largely political, while the greatest economic issue of this century is to create such conditions and to educate our boys as to make them love, prosper on and stick to our farms.

When statesmen big enough and broad enough fill our lawmaking halls to sense this fact and seek the remedy, then we shall have a new era.

Here are just a few random facts tending to show our farms have been and are being drained of its best blood. Sixty-six per cent of the tillers of the soil in the United States are non-landowners.

In Georgia only 34 per cent of the farmers own the land which they till; in Alabama and South Carolina 37 per cent, while in other Southern States conditions are as serious. Similar conditions probably prevail nationwide. This farm ownership by those who do not cultivate the land is becoming one of the gravest problems of the day, and I believe much of it is due to the boys leaving the farm for the city. This alien land ownership must be serious when Mississippi finds it expedient to pass a law regulating it.

We must face this problem and find the remedy. Unless this movement away from the soil is checked, our national prosperity and greatness is sure to crumble. Agricultural schools, rural delivery, rural telephones, wider and more general dissemination of information on improved farming, and now the parcels post are helpful factors and beacon lights along the way, but much more is to be done to accomplish real results.

Much depends on the farmer-fathers. They must treat their boys right; teach him how to love the farm, and let him share in the profits of his toil. The Boys Corn Clubs have demonstrated very clearly what they can and will do if offered the right stimulus, the hope of reward. Closer and better community interest and intercourse, accurate knowledge of the soil and the things that best grow on it—all these form part at least of a general upward movement for the future farmers of this country.

Are we to have conditions here, in the South and in the West, as one may find them in many of the New England States—miles of abandoned farms and

houses vacant and falling to decay? I fear so, unless we can check the flow of boys from the farms to cities. In the South particularly, where the negro farm help is even more pronounced in its tendency to leave the country and congest in the cities, the farmer must learn how to hold his boys, or go to smash.

I am not an alarmist—normally I am an optimist, and believe most men are struggling toward the light and better

conditions. But I would be foolish to blind myself to the conditions outlined, and which any observant man may see. Good schools and broader educational advantages will go far as a remedy.

This is a real and great problem of the day as I see it. Unless it is solved we shall inevitably decay and vanish as the most powerful nation on earth.

C. S. BARRETT.

Union City, Ga.

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The bushes, vines and trees are sturdier, hardier, better able to resist disease and to stand the demands of increased yields.

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Potash Pays

Supplement your manure with 100 to 200 pounds of Sulfate of Potash per acre, or be sure that your fertilizer contains 10% actual Potash. This means 400 pounds of Sulfate of Potash in the ton.

Write today for pamphlets on mixing fertilizers for the crops that interest you.

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Salesman Wanted

To sell trees for the oldest Nursery on the coast. Pioneers of 1849. Since 1863 at the present location. Three generations growing trees. 420 acres. Commission paid weekly.

THE WOODBURN NURSERIES, Woodburn, Oregon.
F. W. SETTLEMIER, Proprietor.

Well Drilling Machinery



You can make big money making wells. This is one of the few lines of work that are not over crowded. The demand for wells is far greater than can be supplied by the machines now at work. Well Drillers command their own prices. We build the celebrated HOWELL line of Well Machinery, for making deep or shallow wells of all sizes, for all purposes and in all kinds of ground. Our machines have all the latest improvements, do perfect work, are easily operated and are very FAST WORKERS. Write today for our free Catalog.

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The Fresno Nursery Co., Inc.

Box 615, Fresno, California

1913

Catalogue now ready. Upon request we will promptly mail you one.

Write for samples and prices on all kinds of field seeds.

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SPECIALTY

Valley Seed Co.

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VALLEY
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IMPERIAL PRUNES on Myro.
BURBANK'S "STANDARD" PRUNE.
BARTLETT PEARS, APPLES, CHERRIES, ALMONDS, PEACHES, HLENHEIM AND ROYAL APRICOTS.
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of superior quality. A large assortment of choice garden, flower, tree and palm seeds.

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Over sixty choice varieties.

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THE BEST ON THE MARKET

All Fancy strains of Vegetable, Flower or Tree Seeds.

Get our catalogue describing same with cultural directions for California.

6 pkts. of our Famous fancy Asters, named, best on the American market, 50c.
1/4 lb. Lettuce, our fancy Los Angeles Market variety, 25c.

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Ask for SNOW'S GRAFTING WAX

IN USE ALL OVER THE STATE.
For sale by all the largest groceries, or
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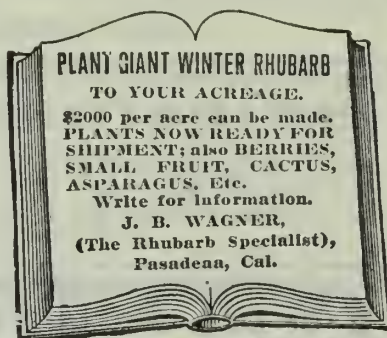
WHY THE ETTERSBURG PLANTS WERE DELAYED.

The following from Albert F. Etter, dated Briceland, February 9th, will serve to answer the numerous letters received from subscribers who applied for strawberry plants under the rules of the public distribution recently conducted by the PACIFIC RURAL PRESS:

Editor Pacific Rural Press: Regarding the delay in mailing the Ettersburg No. 80 strawberry plants, which should have been sent out immediately after the 15th of January, I wish to offer a personal explanation as to why I was unable to forward the plants on time as promised.

Anticipating a pleasant Christmas with my mother, I arrived in Ferndale Christmas eve, only to find her stricken with paralysis and on her deathbed. On the 17th of January she passed to her reward. In cold print, just what this signifies may not come home to all; but when the heartstrings of love in one's heart are severed by the death of one's best friend in the world, it leaves a sorrow and desolation that saps one's physical strength and makes it impossible to rush things.

It is to her that I owe everything. If I have done something in strawberries worth while, much of the credit is due my mother. She, with all the care of a numerous family, made home that poetic dream: "Life in a garden among flowers and trees, from which culture and care have removed every hurtful thing." It was in this environment under her guiding hand that I learned to train plant life to new forms. The energies of her life were a labor of love wherever she could be of assistance. What I am trying to do has been started as such a broad charity, giving to the world, or at least trying to give, something better than it has enjoyed before. The accomplishment of what seems possible in the



PLANT GIANT WINTER RHUBARB
TO YOUR ACREAGE.

\$2000 per acre can be made.
PLANTS NOW READY FOR
SHIPMENT; also BERRIES,
SMALL FRUIT, CACTUS,
ASPARAGUS, Etc.

Write for information.

J. B. WAGNER,

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A general line of Oranges, Lemons, Deciduous Nursery Stock, Roses, Shrubs, etc.

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All leading varieties of deciduous, citrus, grafted walnuts and ornamental trees.

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We grow a full line, reliable stocks—Apples, Pears, Cherries, Prunes, peaches, Berries, etc.

CARLTON NURSERY CO.,
Carlton, Oregon.

TREES

Write for prices on all varieties of Nursery Stock.

Dollar Strawberry Plants, \$5.00 per M.
Burbank's Patagonia Strawberry Plants, \$2.00 per 100.

UNITED FRUIT COMPANY,
Newcastle, Cal.

Do not trust to Providence

Feed your plant life as you would
your live-stock

PURE ANIMAL MATTER
AMMONIATES

Gold Bear



Fertilizers

FOR CALIFORNIA SOILS

Containing animal matter originally produced from elements in the soil are the best and most rational foods for all crops.

Write us for literature and prices.

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NOW IS THE TIME TO FERTILIZE

Fruit Trees and Vines

Mixtures especially prepared for Fruit Trees of all kinds, also for Vines, Berries, and Vegetables. Write for Booklet.

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FRANQUETTE AND MAYETTIE WALNUT TREES

grafted on California Black Walnut Root. Frost-proof, blight-proof. Fill well and bear well. Good money makers. We carry the Wiltz Mayette and Vrooman Franquette. Both have been thoroughly tested. Prices reasonable.

MIRA-MONTE NURSERY, 145 N. Market St., San Jose, Cal.

HORSE MANURE FERTILIZER CONTAINS

Nitrogen49
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Creates Humus, an element required by all lands.

Write or call on us.

PACIFIC MANURE & FERTILIZER CO.,

429 Davis St., San Francisco, Cal.

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Leading varieties of Pear, Apple, Plum, Prune, Peach, Apricot and Almond Trees. Grape Vines. Orange and Lemon Trees. Ornamentals, etc.

Catalogue and prices on application.

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Rubidoux Nurseries

P. M. RASMUSSEN, Manager.

TREES, SHRUBBERY AND RARE PLANTS

Landscape Gardening a Specialty
Plans and Specifications Furnished.

RIVERSIDE, CAL.

work I have under way will mean millions to the world. So far the world has paid nothing. The extent to which the work can be carried forward depends, in a measure, on how much the world is willing to interest itself in new and better strawberries.

The last of the plants given away through the PACIFIC RURAL PRESS will leave here by the 12th of February. I have packed these plants as well as I know how, to carry safely. Should the plants arrive in bad condition, all I ask is an opportunity to know of it, and I will mail another dozen at my own expense. If they don't arrive, write me and I will mail once more. Our mail service up here was quite demoralized by the heavy storms in January. Certain packages I know were mailed before Christmas have not yet arrived; but I am told the outgoing mail goes through without delay. I have tried to do my duty well; but if there is cause for complaint, be forbearing, please. It will often require more than you and I to make this old world run smoothly, even with our best efforts.

I have mailed my little booklet describing the 18 varieties of Ettersburg strawberries of which plants are available to all those to whom plants have been sent out, and it is free to all who may write for it. In conclusion, I would again advise good cultivation, and if you desire the maximum amount of fruit, keep the runner cut persistently throughout the summer. In speaking thus, I refer to thorough culture and hill method of cultivation. In matted row and irrigation, I have had no experience. A report on the behavior of the plants at any time, and especially in May or June, 1914, would be greatly appreciated. It would also be exceedingly interesting if anyone would plant a few plants of some other variety, preferably the one that does best in your vicinity, alongside the No. 80, as a check for comparison. This would be a little extra work; but it is very interesting, nevertheless.

Very sincerely,
ALBERT F. ETTER.

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DEMING THE WORLD'S BEST **PUMPS**

An ideal high pressure power sprayer, with utility engine, agitator, 200-gal. solution tank, hose, nozzles. Complete, ready for operation.

GUARANTEED

best in design, workmanship and materials. Purchase price cheerfully refunded if not satisfactory or found as represented.

SAVE

on your first cost and half your marketing expense by spraying your trees with a DEMING.

NORMAN B. MILLER

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AGENTS WANTED.

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Universally acknowledged the best insect destroyer ever offered. Successfully used for years.

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Write for information to

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for
1913

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WHO IS INTERESTED IN GARDENING
SHOULD HAVE THIS INSTRUCTIVE
VOLUME.

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LOS ANGELES, CAL.

English View of General Purpose Cow.

[London Live Stock Journal, March 20th, 1909.]

It is interesting to have other points of view and those who are thinking about and figuring about cows will be entertained at least by comments which P. McConnell makes in the London Live Stock Journal:

The discussion of development of cows with both the ability to yield milk and to fatten, calls attention to the fact that many of the transatlantic breeders do not believe in what is called the "dual purpose cow." Some of the farm papers in the United States argue and advise against any attempt to bring out such a combination, and indeed their condemnation is couched sometimes in pretty strong language; the idea is looked on as a heresy that would lead to rural disaster. A large number of our American fellow cowmen maintain that the thing cannot be done; that a beef animal is essentially a beef producer and should not be developed for milk, and a dairy cow should keep her own province and never be made worth fattening off.

The present writer has been so much struck with the emphatic statement to the above effect made in one of the lead-

ing American dairy papers, that he has looked up the matter a little in view of former declarations and recent happenings, and submits his finding herewith. To put the matter generally, he holds views diametrically opposed to the American idea, and an attempt is made in this note to marshal some of the facts at hand bearing on the case, and to show that the "general purpose cow," as we would phrase it, can not only be developed, but is even now in existence in large numbers.

Without disparaging any other breeds which are noted for both beef and milk, it may be pointed out that the Shorthorn has already been famous for both qualities right through its history. To quote from the exhaustive "History of Shorthorn Cattle" recently issued: "The improved Shorthorn has achieved its predominant position by reason of its remarkable combination of the properties of beef making and milk producing," and a long list of deep milking cows of pedigreed ancestry which have lived at various times is given. Taking the last six years at the Dairy Show of London, the average Shorthorn has yielded 49.2 lb. of milk in a day with 3.91 per cent of butter fat, while the "official" standard of the Society (issued some years ago) is 8,500 lb. of milk per annum—greater than that allowed for any other breed excepting the Dutch—and the butter yield per day is put down at the same figure as the Jersey and the Guernsey.

The above figures apply to ordinary Shorthorns—that is those that have been more particularly bred or kept for milk—while not losing sight of their value for beef afterwards; in other words, the non-pedigreed dairy variety. Shorthorn men, however, began to bethink themselves about a dozen years ago that even the pedigreed animal had not lost its milking power, and that this might be brought out a little in these days when milking was as valuable as beef. Accordingly, some ten years ago, the Shorthorn Society began to offer prizes for the best milking animals of pedigree strain—that is, for cows that were either registered in the Herd Book or eligible for entry therein. Now it may be necessary to remind some people that a pedigreed Shorthorn is essentially a beef animal. The Brother Colling, who first took up the scientific evolution of the breed out of the aboriginal "Teeswaters," applied the principle taught them by the great Bakewell, who worked with the Longhorns, and devoted themselves to the making of a superior beef producer, to help to supply "the roast beef of Old England." Their successors for one hundred years followed the same lines, and the milking capacity of the mothers of some of the mighty beeves of bygone generations were taken no notice of. Alongside of this, however, the unpedigreed Shorthorn was kept and developed for milking purposes, and herds of milking animals have been in the majority in many districts, and these animals, without any specialization in developing a beef tendency, were fattened off for the butcher after a milking career, and it was, and is, quite a common experience to realize for a fat cow only a few pounds less than she cost or was worth, when first "laid in" as a milker.

It occurred, therefore, to the leaders in the Shorthorn world that as their beef Shorthorns had not altogether lost the power of milking well, and as it might be developed, the above noted prizes were offered to various bodies for the best pedigreed milkers. The result has been so satisfactory that to the mind of the present writer it completely proves the possibility of making and the desirability

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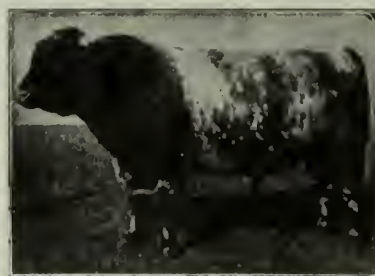
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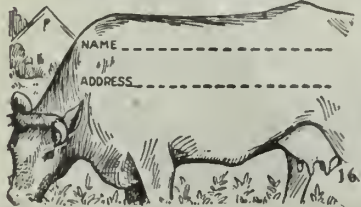
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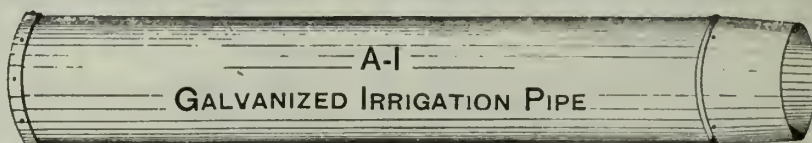
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of owning an animal with duplicate power.

It is, of course, necessary to produce facts and figures in support of the above thesis, and I now proceed to do so. The prizes for pedigreed milkers have been competed for at several shows, but as I am best acquainted with the tests conducted at the show of the British Dairy Farmers' Association, I shall limit myself to these.

When a class was made at that show for pedigreed Shorthorn cows, there was a "standard of points" fixed for each breed as follows:

Pedigree Shorthorns.....	90
Non-Pedigree Shorthorns.....	110
Lincolnshire Reds	100
Jersey	95
Guernsey	85
Red Poll	90
Ayrshire	90
Kerry and Dexter	75
S. Devon	100

It may be necessary to explain that at the above trials the milk of two days is taken, weighed and sampled and analyzed. Points are given for the time elapsed since calving, for the total pounds of milk yielded, for the butter fat and for the "other solids" present. The totals for each cow represents her milking value, and the "standard" fixed for each breed was arrived at as an approximate average over several years. The standards have been altered from time to time as circumstances arose, but those above given are the figures adopted for 1908.

It will be noticed in the above table that the pedigreed Shorthorn has a standard only 5½ per cent below the Jersey; that is, that it is nearly as good a milk cow, and we may confirm ourselves to the Jersey as the typical animal for milking only, for no one would propose to fatten a Jersey cow if he could get hold of any other breed. It may be argued that for butter and cream the Jersey stands first, and that she yields more of these per gallon of milk than any other breed; the answer is that in this country, where the manufacture of butter is a subsidiary industry, we must look to quantity of milk first, and only secondary to the quality. Even in the matter of butter yield the poorer milk may yield the most butter in a twelve-month, because there is more of it, and in any case these tests and standards are founded on all around milking power of each breed, and give the comparative milking values of the

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same as dairy animals.

The first institution of these pedigreed prizes brought up animals which did not yield much over the standard, but they improved in quality year by year, until now the climax has been reached this year, and the champion cow of the Dairy Show—and practically the champion cow of the British Islands—is a dual purpose animal. Dorothy, owned by Lord Rothschild, is entered in the Herd Book as of beef descent, while she is at the same time the champion milker, and is indeed the best milker of any class that has been exhibited during the last four years.

From all the above, therefore, it will be seen that we not only believe in the dual purpose cow (or general purpose cow, to use the English phrase) in this country, but we think we have had it for long in the ordinary dairy Shorthorn, and we have attained to it in the case of the pedigreed animal as well.

It may not, of course, be possible to produce many herds of such animals as yet, but we are getting on that way, for results attainable by one animal or one herd need time and care only to make more general, and Mr. Hobbs seems to have been successful in this direction all along.

It may be acknowledged, of course, that circumstances may differ in the United States in these matters from what they are here. It pays to make butter there as well or as ill as to follow any other kind of dairy farming, and therefore Jersey "grades" are favorites, and it is notable that at the great trial of breeds at the Chicago Exhibition some years ago, conducted over some six months, and superintended by a noted dairyman of English birth (Mr. Charles Cheeseman) the Jersey won on every count; the yield of butter and the money value of the same. Per contra, it is probably cheaper and better to raise the beef out there on the great ranches in preference to trying to "finish off" a few old cows, and therefore the beefier Shorthorns of Herefords are preferred; but in this country, where farming is a little more intensive, it is essential to look to the by-products as well as the main products, and cows that will fatten when old and done for milking are to be preferred.

The feeling against the dual purpose cow is not by any means universal in the States. Some of the farm papers out there advocate development of such an animal, and Professor Plumb, in his recent work on American Live Stock, gives as much attention to this kind of stock as to any of the others, and specifies the value of the Red Poll and the Devon as general purpose animals in common with the Shorthorn. At any rate, the evidence of actual milking and fattening tests or of cash results in this country are all in favor of the cow that will both milk and fatten. While writing this article I have just been informed of the results from a large dairy in the neighborhood of Edinburgh. Edinburgh consumes more milk per head of the population than any other town or city, and the cowkeepers there have been noted for milking and fattening off for more than a generation. They prefer the big milking Shorthorns from Cumberland and the North of England, and rarely keep these round to breed a second time, and in one case I am informed that they cost £23 (about \$115) to lay in and were sold out fat at £17 (about \$85) each. This is a considerable saving in proportion to the milking value of the animal as compared with the results obtained from the purely dairy breeds. The sum of our knowledge and experience here, therefore, is to keep on encouraging the development of the general purpose animal, for she is the one likely to give the best results in the end.



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POOR FEEDING, DEPRAVED APPETITE.

To the Editor: I have three cows. They have been fed alfalfa hay all winter and are in very good condition and seem otherwise in good health, and have salt to run to. Every time they chance to come to the yard they will pick up an old bone and chew it for perhaps a half hour. I always take the bone away from them when I discover it. Will you kindly tell me through the PRESS why they do this?
SUBSCRIBER.

Atwater.

ANSWER BY DR. E. J. CREELEY.

These cows have a depraved appetite owing to the fact the tissues of the body are crying out for something lacking that is required in the system. You will find them devouring nails, screws and wire fences. Nature never intended cows to be treated as they are; we rob their system of the richest elements (milk) year after year, and we think we are doing our duty when we throw a lump or two of salt around the feed boxes. Administer the following powder; also put a lump of lime in the watering trough.

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" Elm bark 2 oz.
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Mix thoroughly and give a tablespoonful in scalded grain once daily.
San Francisco Veterinary College.

WEAK STIFLE.

To the Editor: We have a mare that has a weak stifle. Is there anything we can do to strengthen it?

Acampo.

A. V. C.

ANSWER BY DR. E. J. CREELEY.

This is a very rare complaint and is usually caused from an injury. I feel certain, however, that your diagnosis is faulty and an examination by a graduate veterinarian will reveal something else. I would like full symptoms. I may be able to help you if you supply me with a full history. Use the Ointment I gave in a former query.

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When a stallion is made to labor every day in the harness, his bodily functions must of necessity attain their highest degree of efficiency. No one can make out a good case in favor of letting a horse of any kind stand idle, when the object is to make him as fit as he can be made. Then the feeding of an idle horse is quite a problem. Feeding a horse that works every day is the simplest thing on earth.

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"AN AGRICULTURAL HUMORIST."

The editor is away for a little while on the Citrus Demonstration Train of the University of California, so we are able to get the following little tribute into these columns:

"You may ornament a construction, but you may not construct an ornament."

Among the brainy men from the University who will address the orange-growers today will be Edward J. Wickson, for many years Professor of Horticulture and later Dean of the College of Agriculture. For more than 35 years Prof. Wickson has been editor of the

PACIFIC RURAL PRESS, the foremost rural journal of Western America. Wickson's degree of M. A. should be expanded to Master of Arts and Humor, for he is without a peer in his field. If you say that the editorial chair of an agricultural journal is not the place for an humorist, my reply is that the artist who, week in and week out, can put a cheerful color in the farmer's clouds is a public benefactor; and the doctor of agriculture who, while giving advice based upon twoscore years of observation and practice, can beguile the drudgery of his patients with the anesthetic of facetious optimism is a great physician.

The architectural maxim that you may ornament a construction, but may not construct an ornament, is the pedestal upon which I place Wickson as the foremost American humorist; for Wickson's humor is always incidental to a substantial truth. Go today and hear him. —William M. Bristol, in San Bernardino Sun, February 15.

SECOND REPORT ON BROOD MARE.

In the issue of February 8th a reply of Dr. Creely regarding a mare which could not be gotten with foal was published, together with a request for a re-

port on progress after ten days. The owner now writes: "The mare stopped passing off matter several days prior to receiving your directions. However, I commenced treatment immediately and am giving it now, and will report later if you think necessary. She seems to be feeling better now than for some time and I would like to know how soon it would be advisable to breed her."

This was sent to Dr. Creely, who replies that the mare can probably be bred without trouble next period.

A great many of us turn Opportunity away from the door because she looks like plain old Work.

Every farmer and orchardist knows the true economy of using implements that are made right in the first place and therefore give the greatest return for the money invested. Satisfied customers all over the country testify to the reliability of Killefer implements.

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We are continually on the watch for improvements that will add to the already high efficiency of our goods. Strength is the most necessary thing in any tool—and this is one of our strongest points.

Your attention is particularly directed to the tools shown on this page, in addition to which we make other tools for orchard, road and farm work that are rapidly proving their worth. Write for further particulars.

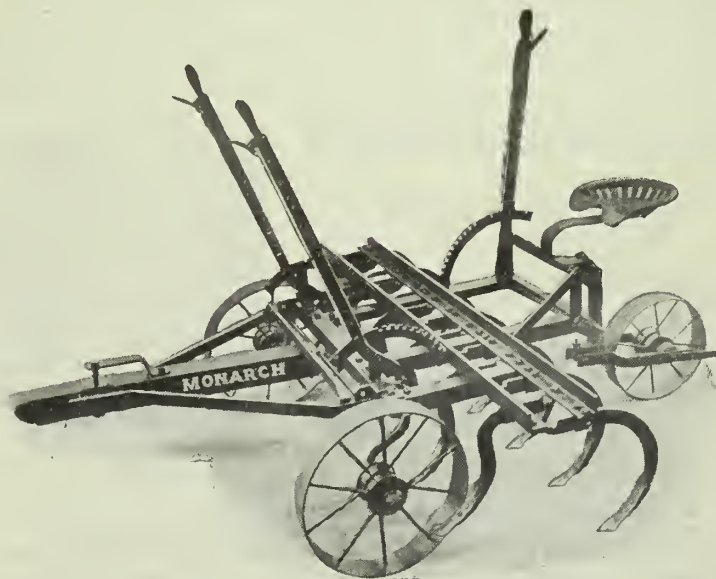


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The rotary action does away with the dragging motion on the ground, preventing the formation of "cultivator sole" and permitting the water to reach a depth where it does the most good. It carries no soil with it, and can be used at a greater depth and with less draft than any other cultivator on the market.

Orchardists using the La Verne Rotary Cultivator place their irrigation periods from one to two weeks further apart, as the La Verne leaves the soil in condition to absorb more water and to retain the moisture for a greater length of time. We guarantee it to give absolute satisfaction.



The Monarch Cultivator

This is the ideal cultivator for all deep, heavy work. It has great clearance (17 inches) between front and rear standards, which permits its working freely in lumpy or trashy ground with light draft. Chisels are made of a special grade of best high carbon steel—stiff and tough.

By arrangement of the levers it can be operated level or deeper on one side (if desired) and held in any position.

Although designed especially for field use the Monarch is becoming a favorite in orchards where deep cultivation is demanded. Write for prices and further information.

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U. S. Dairyman on Cow Testing.

The U. S. Department of Agriculture, through the Dairy Division, Warren B. Thurston, Dairyman for California, is taking an active part in promoting cow testing in this State. Mr. Thurston writes to the PACIFIC RURAL PRESS on this subject as follows:

"Where for various reasons a cow testing association is not practicable or feasible the Dairy Division of the U. S. Department of Agriculture advocates individual herd testing by the dairymen themselves. The only apparatus needed is an accurate scale for weighing the milk, a hand tester of whatever size is desired and any convenient method of keeping a permanent record. Such record blanks can be obtained from the Dairy Division on request.

"The milk from each cow should be weighed morning and evening on a certain date each month and a composite sample taken. The total weight of milk for that day, multiplied by the number of days in the month is taken as the total pounds of milk for the month. Multiply the total pounds by the test of the composite sample and this gives the total pounds of butter fat production for the month. Any points of interest such as change of feed, stormy or very hot weather, should be noted.

"By such methods any dairyman may with a little expenditure of time and money determine accurately the production of the cows in his herd. By following up the information thus gained he may be able to keep fewer cows and still have an equally large cream check with a less amount of feed consumed. Efficiency in feeding and care will follow, which will no doubt save money in a very short time.

"Herd testing is of very little value unless it is carried out for at least a year, so that each cow may be tested through her full lactation period, as the quantity and test of the milk varies widely from month to month.

"Bear in mind that the best time to begin herd testing is today."

Mr. Thurston recently has been visiting the dairies in the mountain valleys in the northern and eastern part of the

State and has gotten a number of dairymen interested in testing the milk from their cows.

In Penn Valley, Nevada county, the Penn Valley creamery has agreed to do the testing for the patrons provided that the dairymen take their samples themselves. The creamery is operated only on alternate days, so that the butter maker has time to Babcock test the milk that is brought in. This is as simple, inexpensive and efficient a method of operating as could be devised. It should be equal to having a cow testing association, or nearly so, and do lots of good and the oftener such a pattern can be followed the better.

THE MILK OF INDIAN BUFFALOES.

The Government agricultural chemists of Bombay and Bengal recently published a paper on the milk of some breeds of Indian buffaloes. As buffalo milk is extensively used in India, the records of the experiment have been received with considerable interest. The Indian Agriculturist says on the subject:

It is known that buffalo milk is richer than that of European or even Indian cows and hence the buffalo is valued highly as a butter-producing animal. Most of the data on record, however, seem to be for the buffalo in other countries than India. F. Strohner analyzed the milk of buffaloes in Transylvania and found a high percentage of fat (over 9 per cent); he did not notice any essential difference in the butter produced from cow's milk. A very complete examination of the composition of the milk of the Egyptian buffalo was made in 1890. The next analysis was that made by Mr. Leather in India, who summarized his results as follows: "The majority of the samples analyzed are characterized by an extraordinarily high proportion of butter fat, 7 and 8 per cent being common, and in one case close on 10 per cent was found. Buffalo milk is also usually white. The percentage of proteids in buffalo milk is distinctly higher than in cow's milk. The percentage of milk sugar and mineral matter correspond very closely to those of cow's milk."

The latest investigations were carried out during a period of 15 months on a number of buffalo cows belonging to the Poona Civil Dairy, and confirm all previous results. The experts say that given suitable conditions, the Indian buffalo stands out from the best breeds of milking cows as a producer of butter fat.

KALE FOR COW FEED.

To the Editor: In the PRESS of February 1, page 146, you have an article on the cost of kale for cow feed. Will you kindly let me know through your paper what kale is worth for cow feed as compared with alfalfa, also if it can be cut and cured the same as alfalfa and what variety is the best?—G. H. P., Yucaipa, Cal.

Kale is very similar to cabbage in growth, and for feeding purposes. For cow feed it would have about three-fourths the amount of digestible nutrients as green alfalfa, but would have an added value on account of its succulency. It would go especially well with alfalfa hay. The Jersey or Thousand Headed kale is considered the standard for stock or poultry feed. It is always fed fresh and is not made into hay.

Keep the heifer calves of your best cows, and don't forget to keep them well, for this is the way to make them better cows than their mothers ever were.

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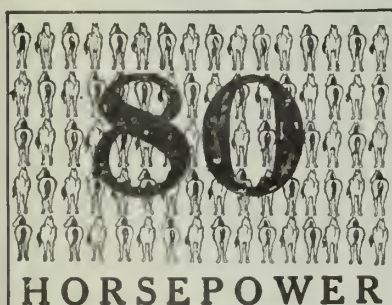
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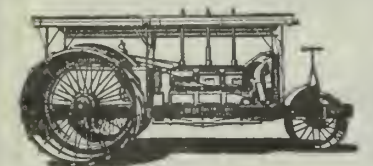
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Economics of Beef Production.

The Nebraska experiment station has published an elaborate bulletin on the cost of beef making with certain foods available in that State of which the current prices or sale values are given. The experiment was made with calves nine months old at the beginning.

There were forty-eight calves, half of them grade Short-horns and the rest grade Herefords. Angus, Red Polls, Jerseys, Guernseys and Holsteins. These were so distributed among six lots of eight calves each as to make all lots of equal merit. In order to make study of different breeds and types possible, the feed of each individual was weighed and the waste feed weighed back and records were made of all. During the first six months of their lives all had been fed on skim milk, grain and hay.

The ration of Lot I was corn, alfalfa and shredded corn fodder; of Lot II corn, alfalfa and corn silage; of Lot III corn, wheat bran and silage; of Lot IV corn, linseed meal and silage; of Lot V, corn, cold pressed cottonseed cake and silage; of Lot VI, same as Lot V, excepting they were given all the grain they would eat, while Lot V had only two-thirds as much grain as these.

These feedstuffs were all of fair quality and worth the following market values: Corn, 56 cents per bushel; bran, \$22 per ton; linseed meal, \$36 per ton; cold-pressed cottonseed cake, \$25 per ton; alfalfa, \$10 per ton; corn fodder, \$3 per ton; silage, \$3 per ton.

This first period of 143 days had for its chief purpose a test of the value of corn silage as a substitute for green pasturage in summer; because summer drouths often destroy or greatly deteriorate the pasturage.

On this point, the use of the silage proved entirely satisfactory, and the conclusion reached is that in Nebraska summer pasturage may be supplemented economically by corn silage.

At the end of the first period, August 15th, the supply of silage was exhausted, and prairie hay worth \$10 per ton was substituted for it, thus furnishing opportunity to compare this hay with corn fodder fed Lot I. The second period of the test extended from August 15 to December 5, a period of 112 days, when the steers were marketed.

The general conclusions as published in the summary of this bulletin are as follows:

"(1) In comparing bran, linseed meal, and cold pressed cottonseed cake, each as a source of protein supplementing cornmeal and silage, the cold pressed cake proved to be worth fifty per cent more per ton than cold pressed cottonseed cake.

"In the use of each of these supplementary protein feeds with cornmeal and prairie hay, the cold pressed cottonseed cake showed a value per ton twenty-two per cent greater than wheat bran, and the linseed meal twenty-eight per cent more than the cottonseed cake.

(Note: Cold pressed cottonseed cake has all the hull left on the seed, and this accounts for its lower value than the same weight of linseed meal. The ordinary cottonseed meal is made from seed decorticated and cooked before having the oil pressed out of it, and hence the meal is free of hulls and is a cheaper source of protein than linseed meal).

"(2) Where alfalfa was used in connection with corn meal and silage, or corn meal and prairie hay, large gains were made without the use of a concentrated protein food. The gains in both experiments where alfalfa was fed were larger, less costly and much more profitable. These experiments, supplementing what had previously been found, show that beef can be produced in Nebraska at a lower cost and with greater profit on a combination of foods available in the State.

"(3) These experiments show that corn silage gives larger gains than shredded corn stover when each is fed with cornmeal and alfalfa, and for beef production is worth sixty per cent more per ton.

"(4) Corn stover has a value eighty per cent as great as prairie hay, and the portion consumed is fully as valuable. Prairie hay at its usual market price is not profitable for fattening cattle.

"(5) In comparing a ration consisting of a heavy feed of cornmeal, alfalfa and a light feed of silage, with a ration consisting of a medium quantity of each feed and a ration consisting of a light feed of corn, alfalfa and a heavy feed of silage, yearling steers being fattened for market made cheaper and more profitable gains on the larger feed of corn and smaller feed of corn silage.

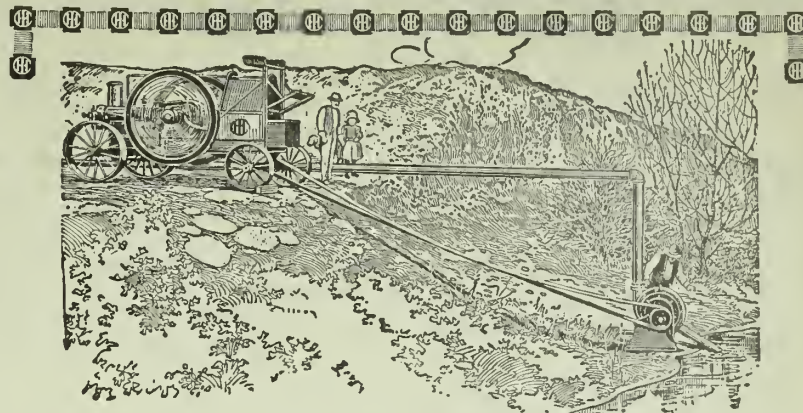
"(6) In growing calves to be fattened later for market, the cheapest gains were made on a liberal ration of corn silage and alfalfa without grain, the cost of gain increasing in proportion to the amount of cornmeal fed.

"(7) These experiments show that there is a great variation in the capacity of individual steers to make gains under like conditions. The data does not show that the individuals of one breed make larger gains than those of another breed. The variation in gain seems to be fully as great within a breed as between representatives of different breeds.

"(8) Type or conformation seems to be a controlling factor, the lowset, more compact types having something of an advantage in gains and much in early maturity over the rangy types.

"(9) Gains seem to correlate to a considerable degree with body capacity as indicated by the size of the middle girth, the largest gainers having relatively larger middle girths at the same weight in most instances.

"(10) While the average gains made by all dairy breed steers are nearly the same as those made by the beef breed steers up to the age of twenty-three months, the latter showed in most instances a higher condition of flesh, a larger proportion of high-priced meat, and sold for a higher price per hundred, returning larger profits to the feeder on the basis of the same initial cost per hundred."



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The Price of Eggs.

[Written for the PACIFIC RURAL PRESS by
SUSAN SWAYSGOOD.]

Over in Petaluma the Chamber of Commerce gave a dinner and invited the poultry-man, the local buyer, the San Francisco commission man and the consumer to attend. This invitation was given to these four factors in the egg business in order that all sides might have a hearing. At least that was what was implied, but search as I would over the pages I failed to find the name of one disinterested consumer. The egg situation was discussed from probably all sides but the real bona fide consumer.

The Petaluma Poultry Journal says: "The producer, the local buyer, the commission man, and the consumer were all there and all were given an opportunity to be heard. Each had his point of view and each point of view was different. The producer told what it costs to produce eggs and of the difficulty he experienced in getting what he thinks is a fair price. The local buyer told about how he loved the producer and all about his troubles in standing between the producer and the other fellows. The San Francisco commission man told all (?) about how he conducts his business so as to just about break even with the game. W. H. Roussel of the San Francisco Wholesale Dairy Produce Exchange told how the exchange "makes" the market for eggs from day to day. And a local citizen topped off the evening's entertainment with the declaration that the San Francisco Retail Grocers Association at a recent meeting at which he was present had convinced him and with documentary evidence that the Petaluma poultrymen are a bunch of crooks."

Mr. Hansen, a producer, was the first speaker. He declared "that the poultryman has no more to say about the price of eggs than the horse that draws them to market; that the price is arbitrarily fixed by the commission men without regard to the cost of production or the welfare of the producers."

THE DEALER'S TALK

Next in order was a commission man, Mr. C. W. Camm. Mr. Camm stated that he had been handling eggs for twenty-four years. He said: "In considering the price of any product we must always consider the law of supply and demand, and in explaining the lower price of the present year he quoted some figures to show the increased supply. In 1908 the receipts in San Francisco were 374,780 cases. In 1912 the receipts were 635,192, an increase in four years of nearly 80 per cent."

Mr. Camm also gave some "valid" reasons why eggs are reduced in price this year, as far as the old gag of supply and demand goes it does not amount to much, in face of the fact that fresh and salted meats are higher than at any previous time except perhaps during the Civil War. Mr. Camm also denied that retailers mixed cold storage and fresh eggs; he said, "no honorable merchant would do it, nor could he do it and hold his trade."

Without some figures it is not possible to say much about the increase of demand, but it seems to me that the population along the Bay Cities must be greatly increased since 1908, when Mr. Camm's first figures are given. This old song of supply and demand has gone the rounds until it must be worn to a frazzle, and it's dollars to doughnuts that hundreds of working men and underfed children around San Francisco don't get to "smell" even a cold storage egg but two or three times a year. What is

wanted is strictly honest dealing and some money spent in educating the people to the value of eggs as a diet.

Mr. Sinclair of Cotati had the floor after Mr. Camm. He pointed out some things that the local poultrymen do that hurt all in the business. He said: "Some poultrymen hold their eggs for days for a higher market." Then maybe the local buyer holds another few days and by the time they are marketed they are in a half stale condition.

WHEN COLD STORAGE BEGUN.—Mr. Roussel, after a few preliminary remarks, told how the storing of eggs begun in San Francisco. He said: "I have handled eggs in San Francisco for thirty-three years. Years ago I handled eggs and sold them for five and eight cents a dozen, while twelve and fifteen cents was a big price during the flush of the season. Later on Petaluma began to produce eggs, and gave us a better quality than eastern eggs. Petaluma dealers at that time took exactly the same position in this matter that the cold storage men take today. They endeavored to take some of those eggs and hold a certain percentage. In doing this they did not do any harm to the producer because of the fact that by holding them for a higher price and taking the eggs of the market."

"Later on the bakers and all the large users of eggs in San Francisco used limed eggs, so as to get eggs during the fall. Accordingly a cold storage proposition started. I remember distinctly having put in one of the first 'five hundred' cases of eggs into cold storage. We made on those five hundred cases of eggs just exactly twenty cents a dozen. That was some profit. That could not last; it was an unusual condition."

QUOTATIONS.—"Later on we came to managing prices and the quotation proposition came up. The San Francisco Call quoted a price, which was secured by their representative going down to the market, and going to Mr. Camm, myself and others, and getting our quotations as to what we considered the market. If I was 'long' on eggs, or had a great many on the floor, I would try to hold the market up, so as to get my margin out of them before the market broke. If the other man was 'short' he tried to get the market down as low as possible, preparing for the shipments coming in. The result was that producers commenced to take what they considered the most reliable paper, the Call."

"When the Call was taken as the criterion, the Chronicle came out with great headlines, saying their quotations were always one to one and a half cents higher than the Call. The result was that people bought on the Call and sold on the Chronicle. Proper thing to do. Good business. Then they got wise to the fact that it was good business to give the Chronicle as high a price as possible, and the Call as low as possible."

"Then Mr. Joe Frates and myself got our heads together and started what we called an Exchange. We simply went over to a room every day, and we sat down. There were only five of us the first day and we decided we would give an absolutely correct quotation, in accordance with our judgment, and each of the five would give exactly the same quotation to the papers. This exchange failed, and a new one formed on the same lines is the present Exchange."

THE FALL DROP.—At this point a poultryman, Mr. Thomas, asked, "Why is it that in the fall of the year, just after the first rains, the price of eggs goes down? You say that the price of eggs is regulated by supply and demand. At

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THE MANOR FARM RHODE ISLAND REDS have won more prizes, cups and specials during 1912 at the big important shows than all their competitors. Utility or exhibition stock and eggs; also please remember if you order S. C. White Leghorn chicks from our 180-200 egg strain you will want more. Prices on chicks, \$10 per 100; eggs, \$5 per 100. Also Barred Rocks and Minorca eggs and stock. The Manor Farm, Petaluma, Cal.

MAMMOTH BRONZE TURKEY EGGS From the largest and best pure-bred flock in the world. All turkeys carefully selected, and combine the greatest prize-winners and the best blood of the East and Middle West. They have large bone, long deep bodies, full breasts, brilliant plumage and are healthy. No inbreeding. Write for further information. Geo. A. Smith, Corcoran, Cal.

OUR GOLDEN ANTLERS AND SILVER CAMPINES took several first prizes both for the fowls and the best white eggs at San Jose, November, 1912. From Jan. 1st to Oct. 31st, 23 hens laid 4148 eggs, and are still laying. Crystal White Orpington and Antler pullets for sale. S. & B. G. HAIGH, Route 2, Box 4C, San Jose, Cal.

BUFF LEGHORNS—Booking orders for spring delivery of day-old baby chicks from two-year-old breeding stock; also eggs for hatching by setting or 100; 6000 egg incubator capacity. Indian Runner duck eggs for sale. Baby ducks hatched to order. R. M. Hempel, R. F. D. 1, Lathrop, Cal.

CROLEY'S LICE PAINT—for lice and mites on poultry. 25c the can.

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PIGEON BARGAINS—Fine young Homers, \$1.00 mated pair. Large Runt crosses, \$2.00 mated pair. Thoroughbred Carneau, \$3.00 mated pair. Discount for quantities. Sunny Slope Squab Farm, Healdsburg, Cal.

SCHELLVILLE HATCHERY—Thoroughbred White Leghorn chicks shipped on approval; examine at your home before remitting; no weak ones charged for. Rural Box No. 72, Sonoma, Cal.

WHITE ORPINGTONS—100 early hatched cockerels and pullets from prize-winners. Sales subject to approval on delivery. Eggs \$5 to \$15 per 15. Jeanne A. Jackson, Oroville, Cal.

\$3.00 PER HUNDRED—Standard Thoroughbred White Leghorn eggs for hatching. Hatchable eggs from healthy hens. Heavy winter-laying stock. Andrew Emery, Kenwood, Cal.

BROWN LEGHORN ROOSTERS, chix and eggs, same in Barred Rocks, White Minorcas. W. S. Rose, Yuba City, Cal.

CHOICE BREEDING COCKERELS and day-old chicks, Barred Plymouth Rocks and White Leghorns. Fairmount Hatchery, Box 29, R. 1, Santa Cruz, Cal.

ORPINGTONS—Buff and White. Trios, \$10 up. Eggs, \$3 to \$5 a setting. Chicks, 30 cents each, incubator lots. Mrs. S. Swaysgood, R. 2, Pomona, Cal.

BARRED ROCKS ONLY—February special, cockerels \$2.50 each; five for \$10. Write for "Mating List." G. L. Hawley, Madera, Cal.

S. C. WHITE LEGHORNS—Heavy layers, California's greatest prize winning strain. Eggs, chicks, stock. Send for list. M. Dutterbernd, Petaluma.

PHEASANTS—Ring-necked China pheasants for sale; also eggs in season. Address T. D. Morris, Agua Caliente, Sonoma Co., Cal.

BABY CHICKS—White Leghorns and Barred Rocks, from selected stock. Also hatching eggs. Satisfaction guaranteed. N. G. Carpenter, Box 14, Sacramento.

CHICKS—White Leghorn, White Rock; high-class stock. Send for booklet of prices. Mahajo Farm, P. O. Box 597, Sacramento, Cal.

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FOR SELECTED EGGS AND CHICKS from S. C. White Leghorns, see Hopland Stock Farm advertisement.

BABY CHICKS, from heavy layers. White Leghorns, Barred Rocks, R. I. Reds. Free folder. White Hatchery, Petaluma.

CHICKENS, DUCKS, GEESE, GUINEAS, Pea fowl. Address Wm. A. French, 545 W. Park St., Stockton, Cal.

TRAPNESTED S. C. WHITE LEGHORNS. Eggs, chicks, stock. A. R. Schroeder, Box P, San Gregorio, Cal.

FREE BOOK—"Poultry Feeding for Profit," on application to Coulson Co., Petaluma, Cal., Box P.

WHITE LEGHORNS—Chicks, eggs, cockerels. Fine stock. Reasonable. O. B. Morris, Lodi, Cal.

the time I speak of, the supply of eggs in this market drops to a very low mark for the reason that our hens stop laying. In fact it is often six weeks or longer after the first rains before we can coax our hens back to laying. I would like to know why, under these conditions, the price of eggs goes down in the San Francisco market?"

Mr. Roussel answered: "They cannot drop the price of eggs under any consideration unless the supply is there. I will admit this: that during the fall of every year, when the first rains come, every merchant, every dealer, looks forward to the future; he has to, because he does not want to have a lot of eggs on his floor and sell them at a loss."

As Mr. Roussel's answer was not considered a good one. Mr. Drees, another buyer, undertook to make it plainer. He said: "In the fall of the year, after the first rains, when the sun comes out warm, the fellows in the city say to themselves, 'Gee, this is fine weather for eggs. The hens up at Petaluma will be shelling them out by the bushel now. I'd better clean up my stock on hand and take care that I don't get caught with a big stock and a falling market.' It is anticipation of a greatly increased supply of eggs in the minds of the buyers that causes the price to drop."

ONLY MANIPULATION.—Mr. Drees is about the only one that aimed to tell the truth, I guess, no matter who got hurt. How any body of producers could sit and listen, much less eat, with such gerrymanders, I can't imagine. Mr. Thomas asked a very pertinent question, a question that forced them to admit that they are on a par with Wall Street gamblers and speculators. For what is it but gambling in foodstuffs when they lower a product that is not yet produced, and possibly never may be? The only thing for this condition is that it be made a criminal offense to gamble or speculate in foodstuffs. Let the visible supply and the legitimate demand for it "make" the price.

There should be no few interested men "making" a price on food products. Every day new uses are being found for eggs, and every day sees meat products on the rise, and feed is high too. Then why should eggs and poultry be lower than at any time during the last few years?

There is not any doubt but that the cold storage has helped the producer, not to the tune of "twenty cents a dozen," but it has helped him during the season when he needs feed to raise his young stock, and when eggs, before cold storage days, were a drag on the market. But the help during the summer season has been his undoing during the fall and winter when his cheap eggs confront him and compete with his winter eggs.

The Petaluma poultrymen may think they gain some information from these manipulators, but I don't. I do not consider that they answered any of the questions put to them satisfactory. The very fact that they gamble on eggs that are not yet laid, or as one might say, "on the weather," which we all know is most unreliable in the fall of the year, is enough to condemn them. And yet I know from actual experience that the San Francisco commission men are "white men" beside the crowd that "make" the market in Los Angeles, for these fellows are the limit sure.

EGGS VS. CRIME.—Now if all the poor-houses in the State, all the reform schools, orphan asylums, hospitals and other pub-

BRONZE Turkeys and Eggs. Ed Hart, Clement, Cal. Large size, good plumage, early maturity.

TWIN OAKS FARM—W. H. Bissell, Proprietor, Livermore, Cal.—Buff, White Orpington.

GEO. H. CROLEY CO., INC., largest and oldest poultry supply house in the West.

lic places would use more eggs and less of the starchy cereals that are advertised in all papers and magazines, we would have less use for doctors, jails and other public institutions that the taxpayer has to support.

Cereals, as used today, cause crime and vicious habits through constipation. Nine-tenths of the youths of today are constipated. What they need is a change of diet; more vegetables and less bread; more eggs and less mush and meat. Too much baking powder and cereals are the undoing of the American people. If eggs and poultry could be advertised by a "Sunny Jim" the supply would not half meet the demand, but who ever saw an advertisement saying eggs were the "staff of life."

Well, the commission men and even the poultrymen who were present at the meeting had a good feast; perhaps that accounted for the loosening of tongues on the one side and the keeping mum on the other. "You can't never tell." Maybe the producers felt the influence of that one "square meal" and out of gratitude to "the masters" kept silent.

Eggs should be made a staple food product, but instead of that they are looked on as a luxury, or something to mix up into a pasty mess that neither improves the egg nor the eater. Served as a proper food and the use of them encouraged by those who have the welfare of the race at heart, they would soon prove that they are far and away better than many of the higher priced foods that are eaten now. Staple food products command a price that is not fluctuating every day, and if the price of eggs could be fixed the poultrymen could regulate the supply according to the demand. As it is he is striving against nature to get winter eggs that cost more to produce both in labor and feed, and as in this year all the extra he gets is to "get it in the neck" where he applies the ax to his chickens.

S. C. WHITE LEGHORN BABY CHICKS, \$9.00 per 100, \$85.00 per 1000.

S. C. WHITE LEGHORN HATCH-EGGS, \$1.00 per 15, \$5.00 per 100.

My stock is thoroughbred and carefully selected for Standard and laying qualities.

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Chemical analysis shows this fish meat meal to contain **28% more egg-laying protein** than the average run of good beef scraps. It is therefore cheaper to feed than beef scraps, as it does not require so much to produce desired results. Furthermore, it keeps poultry in a sound, healthy condition, as it does not contain the hair, wool, hoof, etc., found in beef scraps, which kill off so many laying hens and baby chicks each year.

Use pure Fish Meat Meal in your feeds, and no beef scraps. By using a mixture, the good results are lessened in proportion.

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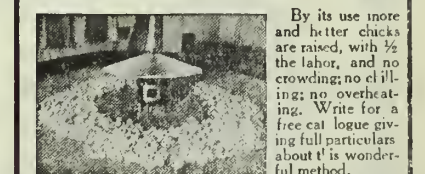
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positive check he can always
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Interesting Facts About California People.

The composition and characteristics of the population of California, as reported at the thirteenth decennial census, are given in an advance bulletin soon to be issued by Director Durand of the Bureau of Census, Department of Commerce and Labor. It was prepared under the supervision of William C. Hunt, chief statistician for population. Statistics of color, nativity, parentage, sex, citizenship, age, illiteracy, marital condition, school attendance, and dwellings and families, are presented.

A previous population bulletin for California gave the number of inhabitants by counties and minor civil divisions, decennial increase, and density of population, and the proportions urban and rural. That and the forthcoming bulletin cover all the principal topics of the population census except occupations and ownership of homes.

NEARLY HALF NATIVES.—Of the total population of California, 1,106,533, or 46.5%, are native whites of native parentage; 635,889, or 26.8%, are native whites of foreign or mixed parentage; and 517,250, or 21.8%, are foreign-born whites. The corresponding percentages in 1900 were 43.4, 29.7, and 21.3, respectively, the proportion of native whites of native parentage increasing somewhat during the decade. In 1910 Japanese constituted 1.7% of the population; Chinese, 1.5; negroes, 0.9, and Indians 0.7.

Of the urban population, 44.4% are native whites of native parentage; of the rural population, 50%. The corresponding proportions for native whites of foreign or mixed parentage are 28.8 and 23.5%, respectively. The percentage of Chinese and Japanese is 3 in the urban and 3.8 in the rural.

In the total population of the State there are 1,322,978 males and 1,054,571 females, or 125.5 males to 100 females. In 1900 the ratio was 123.5 to 100. Among native whites the ratio is 108.7 to 100, and among foreign-born whites 169.6 to 100. In the urban population there are 113.6 males to 100 females, and in the rural 147.8.

HALF WHITES ARE CALIFORNIA BORN.—Of the native population—that is, population born in the United States—50.5% were born in California and 49.5% outside the State; of the native white population, 49.9% were born outside the State. Persons born outside the State constitute a larger proportion of the native population in urban than in rural communities.

The total number of males 21 years of age and over is 920,397, representing 38.7% of the population. Of the 297,365 foreign-born white males of voting age, 137,274, or 46.2%, are naturalized. Males of militia age—18 to 44—number 665,522.

Of the total population, 8.1% are under 5 years of age, 14.7% from 5 to 14 years, inclusive; 18% from 15 to 24; 35.7% from 25 to 44; and 23.1% 45 years of age and over. The proportion of

children is low among the foreign-born whites, negroes, Chinese and Japanese. Only 4.2% of the foreign-born whites are under 15 years of age, while nearly five-sixths (82.9%) are 25 years of age and over. Of the native whites of foreign or mixed parentage, only 47.5% are 25 and over, and of the native whites of native parentage only 52.9%.

CITY AND COUNTRY CHILDREN.—The urban population shows a smaller proportion of children than the rural and a larger proportion of persons in the prime of life. Migration to the city explains this—at least in part. Of the urban population, 37.3% are from 25 to 44 years of age, inclusive, and of the rural population, 32.9%.

The census inquiry as to school attendance was merely as to whether the person enumerated had attended any kind of school at any time between September 1, 1909, and the date of enumeration, April 15, 1910.

The total number of persons of school age—that is, from 6 to 20 years, inclusive—is 555,554, of whom 361,077 or 65% attended school. In addition to these, 6788 persons under 6 and 9801 persons of 21 and over attended school.

EDUCATIONAL.—The Census Bureau classifies as illiterate any person 10 years of age or over who is unable to write, regardless of ability to read. There are 74,902 illiterates in the State, representing 3.7% of the total population 10 years of age and over, as compared with 4.8% in 1900. The percentage of illiteracy is 0.5 among native whites, 10 among foreign-born whites, 7.1 among negroes, 49 among Indians, 15.5 among Chinese, and

8.6 among Japanese.

For persons from 10 to 20 years of age, inclusive, whose literacy depends largely upon present school facilities and school attendance, the percentage of illiteracy is 1.7.

ACCORDING TO SEX.—In the population 15 years of age and over, 45.8% of the males are single and 27.9% of the females. The percentage married is 47.3 for males and 58.4 for females; and the percentage widowed 4.4 and 12.2, respectively. The number reported as divorced—1% of the males and 1.3% of the females—is believed to be too small, because of the probability that many divorced persons class themselves as single or widowed.

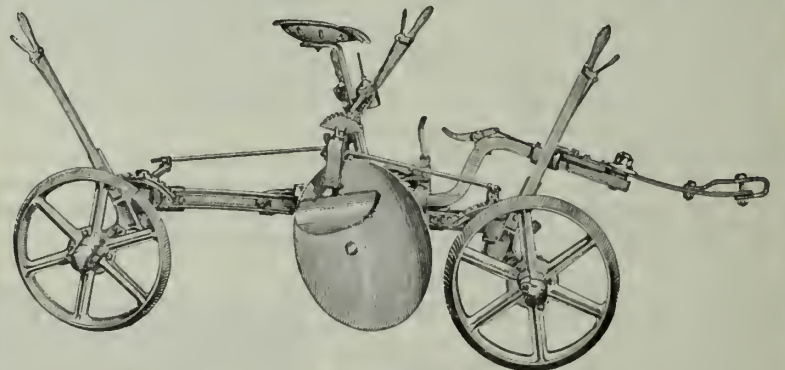
That the percentage single is so much smaller for women than for men is due largely to the fact that women marry younger. Thus, 9.1% of the females from 15 to 19 years of age are married, as compared with 0.6% of the males; and 47.2% of the females from 20 to 24 years are married, as compared with 14.8% of the males.

The total number of dwellings in California is 513,481, and the total number of families 563,636, there being 109.8 families to each 100 dwellings. The average number of persons per dwelling is 4.6 and the average number per family 4.2.

If pasture has not been provided for the work animals and young stock on the farm, this should be provided for. You will see the wisdom of this if you should ever attempt to live on dry foods alone. When you provide vegetables for your table, do not forget the work animals.

A good pedigree is a good thing to have attached to a good cow, but a good cow is more essential to a good pedigree. The answer is, never keep a cow unless she lives up to her pedigree.

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WITH NEW PATENT ADJUSTABLE TONGUE is the most successful Reversible Disc Plow built. It is simple in design, FEW IN PARTS, and perfect in construction, and its durability is beyond question. It is easily operated on hillside or level land.

On Steep Hillside, where a team can walk and draw a plow, it works perfectly.

WE GUARANTEE OUR REVERSIBLE DISC PLOW TO DO GOOD WORK, not only in dry, hard and sticky ground, but to do good work in any fallow ground, either clean or trashy, on hillside or level; in short, to do good work anywhere, except in sod land, at any time when plowing can be done. This is making a large claim for this plow, but by actual use and tests it has proved to be the ideal plow to meet these conditions.

AS A DEEP TILLER it is an unqualified success. Bear in mind, this Plow is not necessarily for use on hillsides only; it is the best Single Sulky Plow for general use made today.

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Home Improvement, No. 11.

Sun Heated Water for the Farm.

[Written for the PACIFIC RURAL PRESS by Mrs. SUSAN SWAYSGOOD.]

Whether this paper will meet the requirements of the editor, as to a water system or not I do not know; but it will contain information that ought to interest every farmers' wife, every dairyman, and in fact anyone who wishes to accomplish more work in a given time with less labor and cost than before.

Last January I had installed on my new bungalow a 40 gallon solar heater with pipes leading into a bath room and one in the kitchen. Since that time there has not been more than ten days that I have not had an abundance of hot water from about 10 o'clock in the morning until 8 o'clock at night on days when the sun has not been very hot. When we have hot days the water is hot by 9 a.m. and stays hot much longer in the evening. And this without one cent of expense for fuel or one minute's labor to carry the fuel in.

The water is city water and is connected with the other pipes, but water from

will cook the fruit while the worker can be cool and comfortable. The improved solar heater can also be attached to the cook stove so that it is a complete system of heating water for California homes.

I think it is safe to say we have 265 days in the year that old Sol will furnish the heating power for the home or dairy; then by attaching it to a stove we can furnish the heat the other 100 days from whatever fuel we burn.

Perhaps I am prejudiced, but somehow I like the water that comes from the solar heater better than any I formerly used for many purposes; it appears to be softer, and besides it is so handy. Always on tap, it looks too good for anyone to be without when all can have it in this glorious sunshine State. That is one reason I like it—it is strictly California goods. Perhaps they may use them in Arizona, I don't know, but there are many States where they could be used at a profit.

COST.—Now as to cost, the price varies



The Sun Heater in Place and at Work.

a wind mill tank or any system that had the lifting power could be used. The heater is set on the south side of the roof and gets the full power of the sun. Now I was somewhat skeptical myself about the water getting hot; warm water is what I expected, not hot water. But the truth of the matter is that it gets near the boiling point a good many times, and I think does boil at others. But, of course, I have no way of telling exactly, so will not say positively.

All the water for washing, cleaning, bathing, dishwashing and in fact all uses there are for hot water, except cooking, comes from this solar heater.

A COOL HOUSE.—And the house is always cool. This is the great feature of this California system of heating water. The housewife can let her fire go just as soon as as breakfast is over, with a full assurance of having plenty of hot water to do all her work up.

When washday comes, this faithful servant is right on the job, and furnishes the water. If I had so planned I could have had stationary wash tubs and a pipe with a tap or faucet over them from the heater, but my house being small I did not do that.

Any housewife knows how wearying it is to work in a house that is hot, any yet hot water is such an indispensable article in the kitchen or dairy that it has to be gotten in spite of discomfort and weariness. In putting up fruit we need plenty of hot water to scald out jars and everything connected with it. Now with a solar heater, the water is right there, in the morning the fruit can be prepared ready for canning, the cook stove fire can be let out, and one small oil heater

with size of tank. A 40-gallon tank is suitable for a small home and family; mine is in the latter class, being, as stated, 40-gallon capacity and the complete tank, reservoir and attachments that go with it cost \$65, besides cost of plumber to install. As the work was done in connection with the rest of the plumbing I could not state just what the amount was for this particular work. The refuse water is carried to a cesspool, and to anyone who has lived for many years on an old fashioned farm home where everything appeared to be built to make work, and more of it, it just seems like living in clover.

HOUSE PLANS.—Though I have no photograph to send, perhaps a description of my little home may help some others who are intending to build. The house is 22 by 24 inside; it has a front porch the width of the building and 7 feet wide; also a screen porch at back. Facing north, the south side of the roof is the home of the solar heater, one pipe being carried direct into the bathroom which is in the center between the bedroom and kitchen. Bedroom is 9 by 12.

Kitchen is what is called a cabinet kitchen having cupboard, drawers for table linen, towels, etc., and cupboards for groceries and anything one wants to use them for. The only fault is that it is too small in floor space to suit me, having always been used to a good large kitchen.

The living and dining room are all in one, being 22 by 11½ with a brick fireplace which answers for kitchen flue as well.

It is all lathed and plastered and has a

stone foundation, and though small, is very comfortable and cozy. The cost of the whole, solar heater included, was \$1000. And I calculate to get my money back in this one labor saving item.

FARM BENEFITS.—No California home no matter how small can afford not to have a solar heater. And this is especially so of the farm home and dairy. Water hot enough to scald your milking utensils any time when the sun shines; why, every dairyman ought to have one on the roof of his milk house, or if not he should have one on house roof and extend a pipe overhead from house to milk house. The steps and time it would save in one year would pay for the cost of it, if labor has to be paid for.

The solar heater and cabinet kitchen are truly steps in the ladder of progressive living; time is money in these days and if want to keep up with the times we must use all labor saving helps we can. The farmer has to keep up in all labor saving machinery or he gets left in the race; and his wife and family need labor saving machinery in and around the home so that they can keep in touch with him.

BETTER LIVING.—The present day farmer needs a companion in his wife, but unless a woman has time to read and study it is almost impossible for her to keep in touch with her husband and children. Farm life has always been hard on the women folks, causing insanity and premature death in many cases. But happily the tide has turned; labor saving devices on the farm has given the men time to look around and see things that hither-

to escaped their notice. They know now why mother used to grow old and wrinkled, and if they can prevent it they don't intend their wives to follow the same way.

Farm life ought to be the ideal life for parents and children, and it will be when the house is as well supplied with labor saving devices, as is the field and orchard. With a solar heater and an improved washing machine run by a small gasoline engine, the family washing can be done with the smallest amount of muscular labor. The same engine would run the churn and the water, piping hot, clean the pans and churn right in the one place without taking a dozen steps. And besides being helpful to the wife in the house or dairy it will save the cost of fuel, or the labor of cutting and carrying it in, to say nothing of the trouble in carrying ashes out.

Once the solar heater is in place it is no further trouble, as it works automatically. You draw out any quantity of water you need and it is refilled at once from the supply tank, which is in turn refilled from the cold water source, whatever it is. And so it goes on without trouble or concern on your part. You simply press the button, which in this case is the pocket-book, and the heater does the rest. The supply tank resembles a chimney on the roof and can be kept painted brick color, and the solar heater proper is a long flat tank over which is a glass frame with very thick glass. Having such a large surface the sun is able to strike the water, as one may say, all over, so it simply can't help getting hot.

Pull Out the Stumps!

Farm All Your Acres

Land is too high-priced to waste. Crops bring too much money to throw any away. Taxes are too high to get nothing in return. Think what you are losing every year by boarding stumps. Think what your looser lands robs you of. It doesn't pay to leave the stumps standing. Get a Hercules all Steel Triple Power Stump Puller.

Pull Out An Acre Or More of Stumps a Day

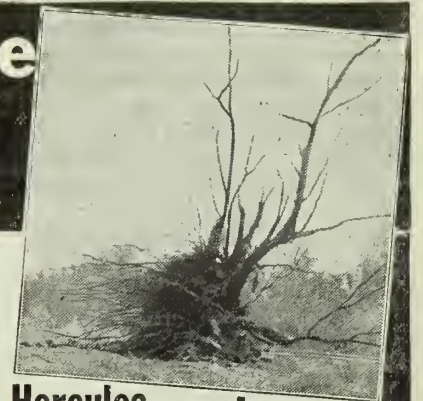
Pull the biggest stump on your place in 5 minutes. Pull three acres without moving machine. The Hercules has greater pull than a locomotive. Has 400% more strength than any other puller—is 60% lighter. Cheaper, safer, surer, more thorough than dynamite. Many special features fully explained in my fine free book.

Send Me Your Name

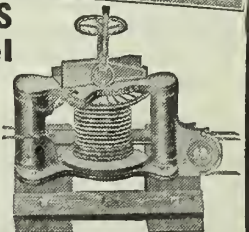
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212 21st St.

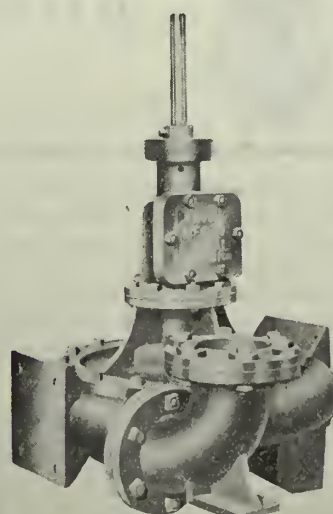
Centerville, Iowa



Hercules All Steel Triple Power Stump Puller



Get my book and money saving special offer. Don't wait! Learn the best and cheapest way to remove the stumps Now! Address B. A. Fuller, Pres.,



Krogh New Vertical Water Balanced Pump

KROGH'S NEW VERTICAL PUMP

The Krogh New Water Balanced Vertical Pump contains many new and valuable improvements, same being fully explained in our Bulletin R-10, which will be mailed upon request.

We have a branch in Los Angeles at 206 N. Los Angeles Street.

The pump can be seen in operation at our place of business.

KROGH MANUFACTURING COMPANY
149 BEALE ST., SAN FRANCISCO

AGRICULTURAL REVIEW.

Irrigation Looking Up.

The people of Crows Landing and surrounding towns, Stanislaus county, held a meeting Wednesday night to discuss ways and means to increase the irrigated area on the west side of the San Joaquin.

At Waterford, east of the Modesto irrigation district, Stanislaus county, a meeting of land-owners was held to discuss the possibilities of diverting water from the Tuolumne river to establish a new irrigation district.

A number of farmers on Churn creek, Shasta county, have incorporated to irrigate 1200 acres of land. The water will be taken from the Sacramento river by pumping with electricity.

In Eldorado county a reservoir which will impound the water of the middle fork of the Cosumnes river is to be erected at Beckers Ford, two miles east of Somerset. Water for irrigation purposes will be provided for land in Sacramento, Amador and Eldorado counties.

Butte county capitalists have filed on 2500 inches of water in the west branch of the Feather river, to be used in irrigating a large part of the land in the Messila valley, around Pentz.

Fruit Notes.

The Department of Agriculture gives notice that a quarantine on interstate shipments of date palms may be applied on account of scale insects found in some sections. The hearing will be held February 25th.

In the Sacramento valley the warm, sunny winter promises a very early blossoming of the almond trees, with a consequent danger of special frost injury, and smudging pots and material for frost protection in a number of places are being prepared.

In Madera county 85% of the raisin-growers have contracted their crops to the Associated Raisin Co. and more are coming. This is a better showing than has been made in any other district.

Sonoma county dried fruit men are to meet in the near future to discuss the proposition of forming a Cured Fruit Association to affiliate with the California Cured Fruit Exchange.

Organization Activities.

The beemen of Monterey met Friday to complete the organization of a Monterey County Beekeepers' Association. Members of the organization visited the schools to demonstrate to the pupils methods of handling bees.

The Corralitos, Santa Cruz county, Fruit Growers' Association has been formed, and R. J. Parkinson elected president and R. H. Goodchild secretary. The members will have all their fruit packed and shipped at Corralitos in the future.

The Stanislaus County Poultry and Pet Stock Association is to hold monthly meetings in the future. On the evening of February 27th, members will bring fowls and have them judged. Addresses on poultry raising will be given, and great progress should be made.

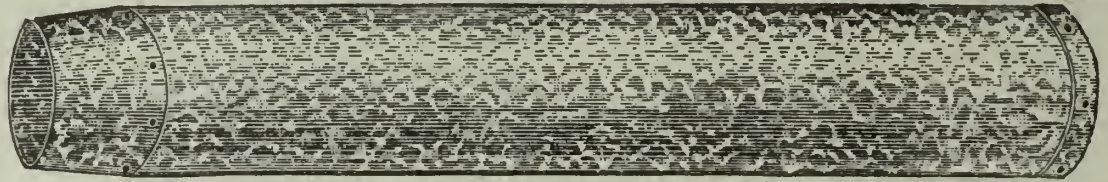
In Napa county the Napa Poultry Association started their annual show Thursday with a good number of exhibitors. The feature of the show is an egg-laying contest for breeds and exhibitors. Cash prizes are to be awarded the owners of the winning fowls.

Portland Stockyards News.

The week ending February 14th at the Portland Union Stockyards was an interesting one. Well-finished steers were

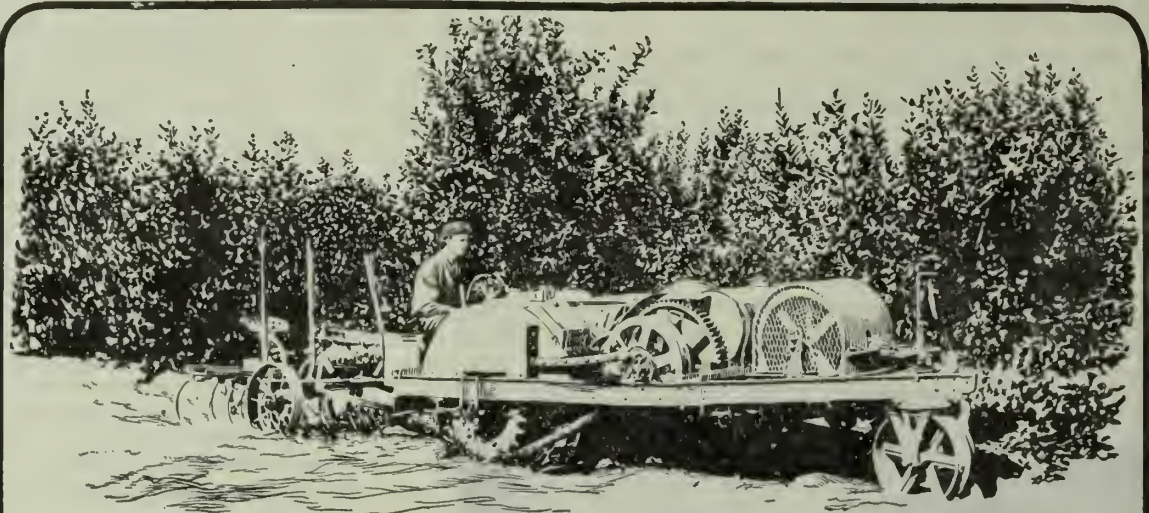


SAVE YOUR TIME WATER AND GRADING BY IRRIGATING WITH AMERICAN SURFACE IRRIGATION PIPE



THE PIPE RECOMMENDED BY ALL USERS. It is the ONLY SCIENTIFICALLY CONSTRUCTED SURFACE IRRIGATION PIPE on the market. Famous for having a lock seam without rivets. THERE'S NO ROUND SEAMS TO LEAK, retard the flow of water or weaken the pipe. This pipe is easily handled and cheaper than flumes. It will last a lifetime. For irrigating alfalfa it is the only pipe to use. We make RIVETED PIPE, TANKS, ETC. Write for ILLUSTRATED CATALOGUE, also SPECIAL IRRIGATION FOLDER which may mean much to you.

American Steel Pipe & Tank Co., General Offices 342-43 Pacific Electric Bldg., Los Angeles, Cal.



Owners Know

There's one sure way to tell about any machine—find out what owners say of it. We want you to give

The Rumely Toe-Hold Tractor

this test. Hunt up someone who has one, and ask him. We've been asking for opinions on this tractor and find that for strength, easy running, low cost of upkeep, and doing a lot of jobs, you can't beat it.

It is especially good for orchard cultivation, but will do any job that a medium sized tractor will do—it will plow, haul, bale, thresh, harvest—do all kinds of field and belt work.

For Orchard Work

S. M. Warden, of Winters, California, says:

"I find that your tractor does all and more than is claimed for it. It is unsurpassed for orchard work, as you can plough closer to the trees than with a team, and make as short a turn as with a two-horse team, and best of all, it does not pack the ground."

Costs Little to Run

Geo. J. Tomasini, of Suisun City, Cal., says:

"I believe there is no cheaper or better tractor made."

Last year we plowed on an average of six inches deep and harrowed twice about 600 acres of land for \$300."

"Good in Every Way"

W. M. Edgell says:

"Highly recommend tractor, draws load of fourteen horses. Does work of twenty. Goes everywhere two fifteen-hand horses can. Turns in radius of ten feet. Easily operated. Does every kind of farm, orchard, stationary work, pumping, sawing, threshing. Splendid engine. Used distillate. Fuel and oil cost 40 cents per hour, maximum load."

We have the opinions of many others—they all agree that the Rumely Toe-Hold Tractor is a winner. It has 28 brake h.p., 14 drawbar h.p. It is light, handy and powerful.

Write for the story of the Toe-Hold Tractor, and ask the name of our nearest dealer.



RUMELY PRODUCTS CO.

(Incorporated)

Power-Farming Machinery

SAN FRANCISCO

LOS ANGELES

PORTLAND

SPOKANE

POCATELLO

or LA PORTE, IND. (Home Office)

453

In big demand and \$8 was reached one day. The bulk of the good stock averaged \$7.50 to \$7.80. Most of the available swine have been marketed and there were scarcely enough to go round, and this market also went up to \$8 for the finished hogs. One lot of 490 head of lambs sold "off the cars" at \$7.50, which was well above average prices of prime lambs. Receipts for everything were rather below normal.

Cattlemen and Forests.

At the meeting of the Inyo Livestock Association recently held, the policy of

the U. S. Forest Service in regard to the grazing regulations was endorsed. The stockmen decided to co-operate with the Forest Service in making more ranges and in setting aside and fencing pastures in the national forests. The Sierra Cattlemen's Association also held a meeting in Fresno recently and elected as directors J. Rogers, T. J. Simpson, John Shipp, Thomas Ockenden, and L. A. Blasingame. The Association decided to abolish the advisory board formerly chosen from members and will put that power in the directors' hands. A number of Forest Service officials were present.

Frost and Citrus.

Horticultural Commissioner A. G. Schulz, of Tulare county, has issued a bulletin on the method of saving trees whose bark has been split by the frost. A wax composed of 4 lbs. rosin, 2 lbs. paraffine, 2 lbs. mutton tallow, is melted, applied to the bark, and a bandage of soft cotton cloth tied on.

The number of places where citrus fruit can be commercially grown in California is indicated in the fact that a number of fruit-growers in southern Alameda and in Santa Clara county are making big

AN OLD COUNTRY

MADE NEW.

Population always follows transportation.

Land values always increase
as population grows.

The completion of the new Oakland-Antioch railway will make

A New Country.

Within commuting distance of Oakland and San Francisco.

A small ranch so near the large and growing population of the bay cities is bound to double in value.

Success in farming depends, not on what you can raise,

But on the market, transportation and social development.

Our Little Ranches

for profit.

Have a million people for a market within one-hour ride.

Transportation is at your door. The Oakland-Antioch electric railway runs through all our subdivisions.

You live in this country and have the social and city advantages.

You can raise anything the market demands.

Profits are bound to follow.

Farm for Pleasure.

How would you like to own an acre or more instead of a

30-foot city lot?

Remember, it costs you no more.

You can raise all the vegetables, fruits, nuts, berries your family can use; also your chickens and fresh eggs.

Your house rent will pay for such a

Home Place.

That's the way to live.

And keep up your business in the city.

That's the way to cut the high cost of living.

The Mount Diablo country is the last and best section open for small farms, either for profit, pleasure, or as a home place, within commuting distance of Oakland, San Francisco or any of the bay cities.

Go and see this country.

You will like it.

Call at office and we will tell you about it, or write for circular.

R. N. BURGESS COMPANY,

734 Market Street,

San Francisco, Cal.

Branch office: 1538 Broadway, Oakland, Cal.

French Prunes

on peach root

FRANQUETTE WALNUTS

on Cal. Black root.

ALMONDS, ASSORTED

on bitter almond root.

SHIPPING PEARS

on pear root.

Write for Discounts

also general assortment.

Leonard Coates
Nursery Company

MORGANHILL, CAL.

STANISLAUS NURSERY

FRUIT AND ORNAMENTAL TREES,
VINES, PLANTS, SHRUBS, ROSES,
ETC. EUCALYPTUS A SPECIALTY.

Write for price list and booklet
on Eucalyptus Culture.

LLOYD R. TAYLOR, Prop.,
Modesto, Cal.

TRACTION ENGINE PLOWS

California Product.
Strongest, lightest Draft. Cheapest and
best on market. 60 days guarantee.
S-R DISC PLOW CO., 62 Post St., San Francisco

money from a few lemon trees they possess. The frost damage there was slight and the high prices in local markets for sound fruit has been quite pleasing.

Land Sales.

The Chamberlain Carr Co. tract of 6400 acres near Hanford has been sold to the Charles A. Stanton company of San Francisco. A large part of the land is planted to alfalfa, and the rest will before long be irrigated also. The ranch has its own irrigation system, taking water from the Kings river.

The Solano Irrigated Farms Co., which was formed to secure 90,000 acres of land in southeastern Solano county, has added 11,000 acres of the Hastings tract to its holdings, so that it now owns and controls over 100,000 acres of land.

The Home Shippee ranch of 2170 acres of grain land, west of Oroville, has been sold. Wells are to be sunk in various places, and if water supplies turn out well it will be subdivided.

THE FREEZE AND FROST
FIGHTING.

(Continued From Page 230.)

promises best we cannot say, but the principle made use of in the Allen wood burner appears to be something worth trying. In this appliance, crude or fuel oil is mixed with steam under high pressure, forming a cheap fuel that may be transmitted as easily as steam is, and which burns with an intensely hot smokeless flame. A line of these flames around and through an orchard or district might do wonders in keeping back the frost.

Steam heat as applied in some of the larger greenhouses of the East might also be cheap and effective. Gas heaters under each tree and sprinkling systems might be thoroughly tried, but the big objection to them is the fact that there is probably not enough of either gas or water available for a long fight over any considerable area. In conclusion, we may say that frost fighting is a question that certainly merits attention and thorough investigation at the hands of the Department of Agriculture or some similar agency.

The sheep that were formerly numerous in Orange county have almost bidden their final adios to the range before the intensive kind of farming pursued. L. F. Moulton of El Toro, Cornelio Echenique and Domingo Orynarzabal of San Juan Capistrano, who have been keeping large flocks, have recently sold off all except a few sheep, owing to the ranges being cut down in size. Cattle will take their place, as these on smaller ranges are safe from the attacks of coyotes, which make the cost of herding sheep in small flocks prohibitive.

NOTICE TO NURSERYMEN

Panama-Pacific International
Exposition.

Sealed proposals will be received by the Buildings and Grounds Committee of the Panama-Pacific International Exposition at the Board Room, 415 Exposition Building, corner of Pine and Battery streets, San Francisco, at 11 o'clock A. M., February 25th, for the furnishing of trees and shrubs in accordance with list and specifications on file in the office of the Director of Works in Room 207 Service Building, Fillmore and Chestnut streets, San Francisco, California.

The right is reserved to reject any and all bids and to waive technical defects, if in the interest of the Exposition Company.

By order of the Buildings and Grounds Committee:

W. H. CROCKER, Chairman.

Farmers Wanted
In Arizona

Big opportunities in Maricopa County, Arizona. Government reports tell of rich soil twelve to sixty feet deep—rich as the Nile.

Farmers who are being crowded out of California on account of high land prices, should visit the great Salt River Valley.

Alfalfa, corn, wheat, vegetables of all kinds, cotton, sugar beets deciduous and citrus trees, dates, poultry, stock raising and dairying are all profitable. \$40.00 per acre is about the average net profit from raising alfalfa. They cut an average of six tons to the acre and this has been selling from \$8.00 to \$16.00 a ton.

A Swiss who has lived in the Salt River Valley for eight years, and who has been in the dairy business all his life, writes: "I never have seen a country where stock does so well and matures so quickly."

Cheap Land—Abundance of Water

There is an abundance of "stored water" in the great Roosevelt Dam for irrigation purposes. Thousands of acres of land are ready for the plow.

Phoenix, the capital of Arizona, is a winter paradise and is growing rapidly. There are other good towns, such as Mesa, Temple, Glendale and the new town of Chandler. Good markets. Railroad facilities excellent. Splendid schools and churches.

Low railroad rates from Los Angeles on Wednesdays and Fridays in parties of three or more. Write for forty page book on the resources of Maricopa County and inducements that are offered to settlers. Land prices at present are very reasonable.

Address: Vernon L. Clark, Commissioner of Immigration,

Dept. 2, 403 Fleming Block, Phoenix, Arizona.

CLASSIFIED ADVERTISEMENTS.

Rate 2c. per word. No order for less than 25c. per week. If you have anything to sell, or want anything, use these columns.

HELP WANTED.

WANTED—A good lath-house man who understands propagating acacias, eucalyptus, etc. A good proposition for the right man. KIRKMAN NURSERIES, P.O. Box 604, Fresno, Cal.

LAND FOR SALE.

FOR SALE—26 acres, 10 acres bearing orchard; plums and picking olive trees, free from scales; furnished house, out-buildings, tools. VICTOR HAZE, Auburn, Cal.

YOU GET RESULTS of my years of searching State Records. Some State land overlooked, supposed owned by absent parties. Well located for you, near all towns. State does not advertise these bargains. I do. It pays you. Write right now. New circular. JOSEPH CLARK, Searcher State Records, Sacramento.

WALNUTS—35 acres, specially selected deep rich loam soil; excellent drainage. Five-inch pumping plant installed. Set out mostly to California Blacks to be grafted later, some Mayette, Franquette, and Willson Wonders. Beautiful location; electricity and all conveniences. Price \$250 per acre. Address owner, 1007 Second St., Sacramento, Cal.

MISCELLANEOUS.

AIR-SLACKED LIME—Lime corrects soil wrongs, helps other fertilizers to do their proper work. Can I help you? H. B. Matthews, Fertilizer Chemist, 733 Merchants Exchange Bldg., San Francisco.

J. E. LAWRENCE, 210 Clay St., San Francisco. Broker and Commission Merchant. Handles all farm products. Ship direct or send samples.

GAS ENGINES REBUILT IN OUR SHOPS

give the same satisfaction as new ones. Expert mechanics rebore the cylinders, make new pistons, and rings, and refinish all bearings and wearing parts. Every engine carefully tested for capacity and operation and sold with a rigid guarantee. As we can furnish any size or make at extremely low prices, you cannot afford to purchase an engine without first getting our proposition. We can refer you to many satisfied customers. SPECIAL: 14—8 H.P. Samson Engines, with magnetos and tanks, each \$150; 5—10 H.P., each \$195. Information cheerfully furnished. MECHANICAL INSTALLATION CO., Engineers, 181-189 2nd St., San Francisco.

TREES AND NURSERY STOCK.

AVOCADOS (budded), Feijoas, Cherimoyas, and other subtropical fruiting plants and trees. We have the largest and finest stock of budded avocados, and the best varieties. We grow only subtropical fruits of proven adaptability and sterling merit. Send for pamphlet. WEST INDIA GARDENS, Altadena, Cal.

FOR SALE—Florida sour orange seed. Order now while we have plenty. They will be higher later on. We also have grafted walnut trees, both black and soft root. Orange County Nursery, 6th and Main, Santa Ana, Cal. Red 3891.

FEIJOA—This superb new fruit is hardy all over California. Sure to be one of our great commercial fruits. Write for prices. COOLIDGE RARE PLANT GARDENS, Pasadena, Cal.

NURSERY TREES, fruit and ornamental. Nearly all varieties to be seen on our experimental place near State highway. LEONARD COATES NURSERY COMPANY, Morganhill, California.

WALNUT TREES—Late varieties, grafted and budded on hybrid root—Eureka, Franquette, Mayette, Concord and Placencia. Dr. W. W. FITZGERALD, Elks Bldg., Stockton, Cal.

VILLA ANNA NURSERY—Fruit and ornamental trees. Burbank standard cactus a specialty. Santa Rosa, Cal. Write for catalogue.

Bitter Almond trees, clean and thrifty. Walnut and Pecan catalogue free. Trible Nurseries, Elk Grove, Cal.

E. A. Bennett, of Ducor, Cal., will quote you sour orange seed, delivered to any postoffice.

FENN'S ADJUSTABLE POST
HOLE AUGER

Is sold on our positive guarantee that it will dig faster in all kinds of ground than any other post hole tool, auger or digger, and twice as fast in very heavy clay, gunbo, adobe or hardpan.

If your dealer does not sell the Fenn, WRITE us for descriptive matter and prices.

A real labor saver.

BANK-MENDELSON
COMPANY, Dept. "P"

Monadnock Bldg. Higgins Bldg.
San Francisco, Cal. Los Angeles, Cal.
Pacific Coast Agents

The Home Circle.

Little Helps and Receipts.

By AUNT GEE.

The house is God's workshop. Anything that tends to make it purer, brighter or more wholesome tends to lead His children homeward.

Newspapers are a great help. One put under the children's plate at meal-time or for working people is a great saving of washing.

When getting a meal or baking, spread them on the floor around the stove and cook table, also before the beds at night, saves sweeping. Under baby's high chair, ditto.

Rub the stove vigorously with crumpled up papers.

Tack them up where the wall might be spattered.

LET YOUR LIGHT SHINE.—Fill, trim and clean lamp or lamps when doing morning work, cover the globe with a paper sack to fit, and at night when tired, light a lamp that will be a satisfaction and comfort.

A cloth dampened with coal oil is good to rub the furniture after dusting.

A piece of pumice stone is good to take stains from hands, to scrape pans, kettles and for scouring.

Make a number of holes with a small nail in the lid of a baking-powder can to be used for flour about the cooking.

COOKING RECIPES.—Salt and slightly pepper each side of thick slices of large onions, dip in flour and fry.

Try rolling fish or young chicken after seasoning in meal, instead of flour, before frying.

Large coffee cans are useful to keep meal, hominy, graham flour and sugar in. Keeps fresh and moist.

Roast clean wheat same as coffee, grind and use a tablespoon for each large cup. Pour boiling water on, let boil up, set on back of stove 15 minutes, makes a wholesome drink.

Eggs boiled from half to three quarters of an hour are tender and digestible for those who cannot eat simply hard boiled eggs.

Fat from a good pot roast is equal to butter for seasoning or cake making.

Do not waste a scrap of bread left by a clean, healthy person.

A few potatoes sliced thin, about one-half as much sliced onion, season with salt, pepper and sage and fry till about half done, then pouring on boiling water. When done, move to one side, put in a little more grease and about as much bread broken in pieces as potatoes and onions. When thoroughly hot add more boiling water, cover till steamed soft then stir all together. Add meat scrap if desired. Very palatable.

Cook tomatoes, season with salt and sugar, pour over slices of toasted bread.

Cold biscuits or loaves of dry bread dipped in cold water, and put into a hot oven are equal to fresh bake.

Wholesome graham bread is easily made. At night, cook two small potatoes till tender. Pour off water, mash, put back, let cool a little, then use it to make a sponge with white flour, putting into it good yeast and a large spoonful of sugar. In the morning the sponge should be very light. Mix it with enough warm water and graham flour to make required bread, add heaping tablespoonful each of brown sugar and salt—a little shortening if desired, making a medium stiff dough. Form into loaves, and set to rise till quite light, and bake in moderately hot oven at least an hour.

Go on the idea that everybody is going to treat you white, and three times out of four you won't be disappointed.

Dressing Cheaply.

To dress well, and yet be economical, is a problem before which the bravest woman stands aghast. There is one suggestion which she may follow, and I think she will find if she follows it consistently that it will help for more than anything else to look well and spend little. The suggestion is only to buy between seasons. To go in the height of the season to purchase your winter suit and choose your Sunday hat, means but one thing; that to obtain anything good you must pay the winter price. In February the best shops reduce their really fine garments, hats and lingerie. To buy then means that you will secure a better value for the less money than you would have to give for even a far inferior grade of goods at a different season. If you once begin to buy in this way the needs of your wardrobe will get "into the swing" as it were, of this method of purchasing and you will find that your February outfit will do for early fall, and that your August gowns are quite presentable to begin the following summer with. Really wonderful hats, gowns, top-coats and lingerie can be had far below cost in February and August.

Economy in dress may also be practiced by a careful following of the latest fashion in all details—such as the collar, the sleeve, the length of skirt and manner of putting on the veil, while at the same time strictly avoiding that excess in matters of dress, which makes a gown ridiculous and out of date in a few months. If everyone is wearing golden-brown, avoid it. If all the dresses are made short under the arms, moderate the fashion decidedly before you order a gown that must do for several years. If enormous hats are worn see that yours is medium. Never choose a bright color hat that will mark your costume. There are many little ways of being quite up to date without being in the least conspicuous. This is the only way to economize, and though your garments may not attract much attention, you will be able to keep up to date and attractively dressed on a slim purse.—Mary Swails, in Journal of Agriculture.

Dr. Eliot on Home.

"A mother should, if possible, be educated, for there is not an occupation in the world in which so much can be imparted and acquired as that filled by the mother, the home maker."

Dr. Charles W. Eliot, Harvard's former head, recently made the foregoing statement, coupled with the added clause that the home itself contained unlimited opportunities for the training and education of the mother.

"It will be observed," he added, "that the women who are most apt to lose their chances of obtaining their intellectual life as mothers and heads of families are those who are apt to employ servants, nurses and governesses to do their work for them."

"The normal girl, who learns to read, write and cipher at school, and acquires there a little knowledge of history and literature and taste for reading, finds her means of intellectual development outside of the schoolroom in her practice of the household arts, in her study of clothes for herself and her family, in her enforced careful expenditure of money, in reading and in her daily intercourse with father and mother, brothers and sisters, companions and acquaintances."

"From these things much intellectual training can be extracted by a girl who thinks, and the girl who does not think before she is twenty-four is not likely to think much at any time of her life. Suddenly this girl takes into her heart and brain the personality and interests of an-

other human being, a young man. When courtship and marriage are taken thoughtfully, and neither as a matter of mere impulse and emotion nor as a business arrangement, there comes with them a strong intellectual stimulation, and in most cases a widening of the field of observation and thought."

A Word to Mothers.

Now that the children are again in school, a few words in regard to home influence and discipline may not be amiss.

Do not permit the children to leave home long before the time of opening. Insist that they go direct to and from the school building and never leave the grounds without the knowledge and consent of the teacher.

If necessary to take lunch, prepare separate lunches, each child caring for his own.

Provide the necessary text-books and other school supplies for each child, that there may be no excuses for unlearned lessons.

Let the children talk freely of school affairs, but do not encourage tale-bearing. Talk of topics studied at school and see that lessons are partially prepared for the next day.

Encourage both teacher and pupils by an occasional visit to the schoolroom, and on special occasions, take father along to see how much the children have improved and how well behaved they are.

Home training is apparent in the schoolroom, therefore, teach the children to be kind and polite to each other and to their playmates and to respect and obey their teacher.

Send them regularly to school and cooperate with the teacher in every way possible to make the school a success, and the result will be visible not only in the progress of your own children, but of the entire school.—Mrs. J. W. Clark.

Table Habits.

From the earliest possible time the habit of eating slowly and chewing the food very thoroughly must be insisted upon. If this is begun at an early enough age, it is easily learned and will prove to be a valuable acquisition for later years. If the child eats with an attendant or with the rest of the family, he should be allowed to talk to a reasonable extent; speech should be regulated, not forbidden. For with children, as well as adults, the act of speaking causes useful breaks in the steady course of masticating and swallowing food; it allows the gastric contents to be well mixed with the secretions of the stomach, and at the same time it provides an atmosphere of reasonable enjoyment that a child may claim as well as his elders. The rule that children should be seen and not heard is capable of too strict an interpretation that lends itself very readily to petty domestic tyranny. So long as there is reasonable and healthy discipline in the household, every child should be allowed to talk, to take part in the family life, to feel that he is an integral part of the home circle, and to realize that his words—even if they be not heavy with wisdom—will receive the consideration and attention which abiding love and a mild toleration dictate. The ordinary child whose environment provides suitable examples of self-restraint and good manners learns in a surprisingly short time how to conduct himself within sufficient bounds to be reckoned as a human being, and not as a more or less untamed animal.—Dr. Nathan Oppenheim.

The back of a skirt, especially a tight one, often acquires a shiny look that is not removed by ordinary pressing. It

BEAVER BOARD



Mr. E. L. Tunis of Baltimore, Md., has found Beaver Board Walls and Ceilings admit variety of design to suit any room in the house.



Beaver Board has not only given Mr. J. R. Fant of Oklahoma City, Okla., beautifully designed walls and ceilings, but has made the rooms warmer in winter and cooler in summer.

Next Time You Think of Re-papering Don't

INSTEAD, investigate the advantages of Beaver Board for Walls and Ceilings. It will relieve you forever from plaster and of wall-paper, and give you clean, sanitary walls of pure-wood-fibre, the unique pebbled surface of which you can paint in attractive and tasteful colors.

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Beaver Board Walls and Ceilings are made in panels suiting the best modern ideas of interior design. They are economical, easily put up in old or new buildings, keep out heat, cold and sound, save all the delay, litter, trouble and confusion of lath and plaster, lumber or other materials.

Sold by builders' supply, lumber, hardware and paint dealers and decorators in sizes to meet all average requirements.

GENUINE BEAVER BOARD has our registered trade mark on the back of each panel and sample. It has also a light-cream color all the way through, that comes only by the use of sanitary, durable PURE WOOD FIBRE. Insist on seeing both trade-mark and color before buying.

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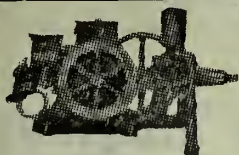


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Have you had to depend on the wind for pumping water? The wind is uncertain—the right way is with a

1½ h.p. Rumely-Olds Engine

You'll get your water at low cost, you save a lot of time and work—you'll have an engine that will do your pumping in a short time and be ready for general service the rest of the day. To make pumping no job at all, hitch this engine to a

Rumely Pump Jack

Then all your pumping trouble goes. You have a real outfit at a very slight cost. Rumely-Olds Engines are strong and simple—Rumely Pump Jacks are right, too.

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The Rumely-Olds 3 h.p. Engine will handle a bigger job—we have them in all sizes, stationary, skid mounted or portable—so we're sure to meet your requirements, and we have the proper pumping outfit for each size.

Write for the Olds Engine Data-Book No. 344, and the special folder on Rumely Pump Jacks—ask name of our nearest dealer.

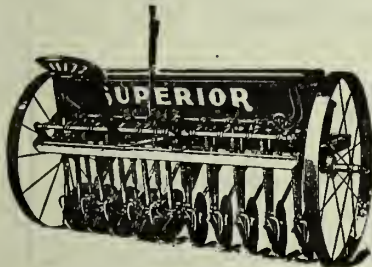
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Send for Circular on Special Alfalfa Drill. Seed costs money—a Drill will save its own cost.

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Capital Paid up \$6,000,000.00
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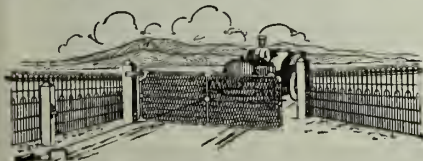
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Very best quality of selected second-hand water pipe and standard casing pipe. All newly cut threads and new couplings attached; asphaltum dipped. Fully guaranteed. At extremely low prices. BUY NOW while the opportunity prevails.

WEISSBAUM PIPE WORKS,
160 Eleventh St., San Francisco.

is often possible to remove the shine by rubbing it on the right side with ammonia and water, equal parts, and then ironing on the wrong side while damp. It should be well dried out with the iron. If the shine is due to hard wear which has rubbed the pile off, ammonia will not improve it, and it should be gently sandpapered. Lay the fabric flat on a table and pass fine sandpaper gently over it. This will bring up the pile, but it should not be done so roughly as to wear the fabric into holes.

"The Cigarette Boy."

There has been issued by the Department of Public Instruction in California and excellent little pamphlet entitled "The Cigarette Boy." It is not intended to be used as a text for the pupils but rather as a help to the teachers of the California public schools in the difficult task, imposed upon them by law, by checking the use of narcotics by the children of the State. Formal lessons are not laid out, for the subject is not one of teaching by the set lesson, but material is supplied in the opinions and suggestions of prominent people to provoke thought on the part of the teacher and suggest points of attack. Throughout the appeal to the boy is through his interest in athletics, in physical prowess and feats of endurance of all sorts, to refrain from that which will only retard mental and physical development during the years of growth when he needs all the power given him to feed his muscles and his nerves.

"Your first duty in life is toward your afterself. So live that your afterself—the man you ought to be—may in his time be possible and actual. Far away in the years he is waiting his turn. His body, his brain, his soul, are in your boyish hands. He cannot help himself. What will you leave for him?"—LaFollette's Magazine.

When Water Is Boiled.

Many housekeepers think that if their drinking water is boiled they have done everything necessary to protect the family health.

Therefore they proceed to let it stand around a day or more in pitchers, often not covered at all or so loosely that all the impurities of the room are absorbed, and the last state of the liquid is often worse than when it came from the spigot.

All water as soon as boiled should be put in air-tight bottles.

The quart beer or soda-water bottles with patent corks are the best, but if one does not have them, quart jars with porcelain-lined tops and rubber rings can be used, or even the bottles for milk with tight-fitting paper tops.

Do not put the bottles in the refrigerator until they have cooled or both bottles and ice will suffer.

Smile.

A little seven year old girl who lived with her grandparents was asked by her grandma, who was making a blue chambray dress for her:

"Myrtle, how shall I trim your dress, dear?"

"Why, with young muslin, grandma."

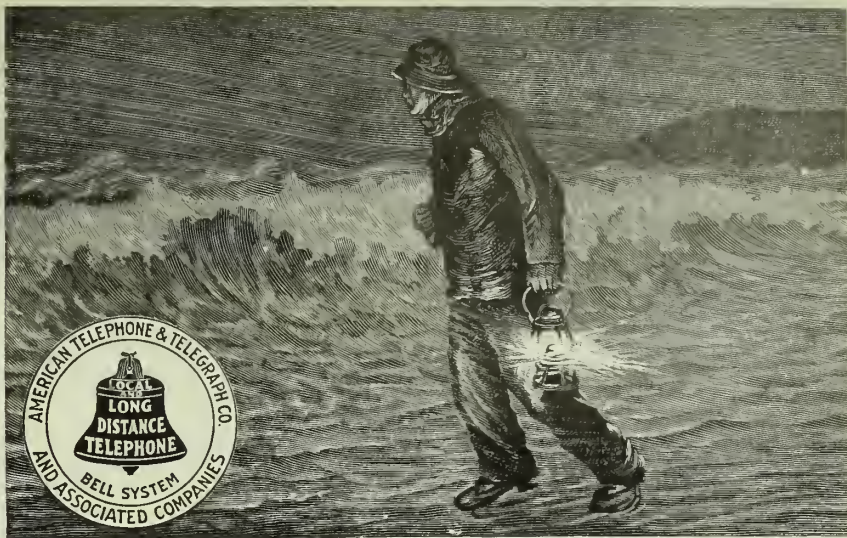
"With young muslin!" said grandma.

"Oh pa, just hear the child. She says she wants her dress trimmed with young muslin."

"Well! You don't think I'd want it trimmed with old muslin, do you?" said the child indignantly.

"The impudence of some people!" snapped Mrs. Parvenue. "She told somebody that I did my own washing!"

"Well," replied Mrs. Manor innocently, "whose washing do you do?"



Always on Guard

No matter where a ship may be along the American coast; no matter how dark, or cold, or stormy the night, the coast guard is on watch, patrolling the nearest beach or rocky cliffs.

This man, always on guard, could, by his own unsupported efforts, do little to save life, or to guide ships away from perilous points.

As a unit in an efficient system and able, at a moment's notice, to command the service of his nearby station, he becomes a power to whom all ship owners and passengers are indebted.

In the same way, the Bell Telephone in your home and office is always on guard.

By itself, it is only an ingenious instrument; but as a vital unit in the Bell System, which links together seven million other telephones in all parts of this country, that single telephone instrument becomes a power to help you at any moment of any hour, day or night.

It costs unwearying effort and millions of dollars to keep the Bell System always on guard, but this is the only kind of service that can adequately take care of the social and commercial needs of all the people of a Nation.

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Rayo Lanterns
Strong and Durable

**For Fishing,
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and Hard
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Give steady, bright light.	Easy to Light.
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R. F. WILSON, 447 W. Main St., Stockton, Cal.

THE MARKETS.

San Francisco, Feb. 19, 1913.

(Unless otherwise noted, quotations represent prices paid to the growers.)

Cereals.

WHEAT.

All Coast markets have shown a rather easy tendency in values of late, and while the local quotations on most grades show no change, buyers are holding off in anticipation of a decline. There is no trading except for current requirements, which are only moderate.

California Club	\$157½ @ 1.60
Sonora	Nominal
White Australian	Nominal
Northern Club	1.57½ @ 1.60
Northern Bluestem	1.67½ @ 1.72½
Northern Red	1.55 @ 1.70

BARLEY.

The speculative market has a firmer tone owing to the dry weather, and the same influence is felt in spot values, although there has been no quotable change. Holders are firm in their views, but the local demand for feed is limited.

Brewing and Shipping	\$1.45 @ 1.50
Choice Feed, per cwt.	1.32½ @ 1.40
Common Feed	Nominal

OATS.

There has been no change, either in conditions or prices. Trading is very light, with fair supplies but little demand.

Red Feed	\$1.85 @ 1.90
Seed	2.00 @ 2.10
Gray	Nominal
White	1.50 @ 1.55
Black Seed	2.20 @ 2.30

CORN.

Values have not yet been established on California corn, though a few lots are offered here. Eastern corn is quiet locally, and prices tend downward, with liberal offerings in the East.

Cal. Yellow	Nominal
Eastern Yellow	\$1.50 @ 1.55
Eastern White	Nominal
Kaffir	1.50 @ 1.55
Egyptian	1.70

RYE.

Values are almost entirely nominal, as there is no apparent demand, though several lots are offered at irregular figures.

Rye, Per cwt.	Nominal
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BEANS.

The bean situation at present is uninteresting and featureless. There has been no change in prices for the last two weeks, and while all lines are steadily held there seems to be no distinct tendency to greater firmness. Eastern buyers are still coming out for mixed cars, but there is no movement of a large nature, and the total movement is only moderate. Country stocks are pretty well cleaned up, and if anything were offered it would probably receive little interest. Quotations represent prices in the local market.

Bayos, per cwt.	\$3.25 @ 3.45
Blackeyes	3.15 @ 3.25
Cranberry Beans	4.70 @ 5.00
Horse Beans	2.25 @ 2.35
Small Whites	4.50 @ 4.65
Large Whites	4.20 @ 4.35
Limas	5.60
Pea	Nominal
Pink	3.70 @ 3.90
Red Kidneys	4.00 @ 4.25
Mexican Red	4.00 @ 4.20

SEEDS.

Canary seed has taken another jump, and the small offerings are firmly held at the advance. Other lines stand as before, most descriptions receiving only limited attention.

Alfalfa	15 @ 16 c
Broomcorn seed, per ton.	\$29.00 @ 30.00
Brown Mustard, per lb.	3½ c
Canary	5½ @ 6 c
Hemp	3½ @ 4 c
Millet	2¾ @ 3 c
Timothy	Nominal
Yellow Mustard	Nominal

FLOUR.

There is nothing new in prices, and conditions are about as for some time past, the demand being normal for this season.

Cal. Family Extras	\$5.60 @ 6.00
Bakers' Extras	4.60 @ 5.20
Superfine	3.90 @ 4.10
Oregon and Washington.	4.90

Hay and Feedstuffs.

HAY.

Arrivals are still fairly heavy and while the local demand is not particularly heavy, the arrivals have been cleaned up with little difficulty. Values show little firmness except on strictly fancy grades, of which very little is arriving. On most grades values are weak, though not quotably lower. Crop conditions are still considered satisfactory, and while more rain is wanted, the growing crop everywhere looks good. Supplies in the southern markets are in excess of present needs, and there is little demand from that quarter. Alfalfa hay is now the cheapest feed available, and there is a large movement in the interior, though the heavy supply has prevented any material advance.

No. 1 Wheat, or Wheat and Oat	\$18.00 @ 20.00
do No. 2	15.00 @ 18.00
Lower grades	12.00 @ 14.50
Tame Oats	15.00 @ 20.00
Wild Oats	12.00 @ 16.50
Alfalfa	10.50 @ 13.50
Stock Hay	9.00 @ 10.50
Straw, per bale	35 @ 75c

FEEDSTUFFS.

There is little change to report, the general demand being only moderate. Oilcake meal is offered in larger quantities, and is cheaper, while rolled barley continues to advance.

Alfalfa Meal, per ton.	\$18.50 @ 19.00
Bran, per ton	25.00 @ 26.00
Oilcake Meal	39.00 @ 40.00
Cocoanut Cake or Meal.	Nominal
Cracked Corn	34.00 @ 35.00
Middlings	34.00 @ 35.00
Rollod Barley	29.00 @ 30.00
Rollod Oats	35.00 @ 36.00
Shorts	29.00 @ 30.00

Garden Truck.

VEGETABLES.

A few fancy repicked onions are held above quotations, but general offerings are still easy, supplies exceeding the demand. The principal feature in the market is the increasing arrivals of asparagus, a considerable quantity of which is now arriving daily from the river district. This has brought an end to the extreme prices, though choice lots still bring good figures. Supplies of rhubarb are also increasing, but so far values have been well maintained. There was a heavy overstock of Southern lettuce the first of the week, and considerable old stock has been sold at low prices. Celery is also lower. Green peppers and cucumbers are higher, and peas are little more than nominal, arrivals being irregular. Mushrooms are lower, with a considerable increase in supplies.

Onions: Yellow, cwt.	50 @ 65c
Garlic, per lb.	1½ @ 2c
Tomatoes, per box	\$ 1.50 @ 1.65
Cucumbers, per box	3.00 @ 3.25
Cabbage, per cwt.	40 @ 50c
Carrots, per sack	50c
Cauliflower, per doz.	30 @ 40c
Celery, crate	2.00 @ 2.50
Rhubarb, lb.	6 @ 11c
Mushrooms, box	30 @ 75c
Artichokes, doz.	75c @ 1.25
Sprouts, lb.	6 @ 7c
Green Peppers, lb.	20 @ 35c
Lettuce, crate	50 @ 1.25
Eggplant, lb.	30 @ 35c
Green Peas, lb.	10 @ 15c
Asparagus, lb.	15 @ 35c

POTATOES.

No change is noted in prices, and the market is running along in the same rut as for some time past, supplies being far beyond local requirements, while there has so far been no important demand for shipment.

River Whites, cwt.	35 @ 50c
Salinas, cwt.	\$ 1.00 @ 1.25
Oregon, cwt.	65 @ 1.00
Sweet Potatoes	1.90 @ 2.00

Dairy Produce.

POULTRY.

Arrivals of dressed turkeys are larger than for some time past, but much of the stock in is rather poor condition, and as there is no special demand, prices are slightly lower. Large broilers are also lower, though everything else is firmly held. Eastern supplies are still moderate, and California chickens come in rather slowly, keeping the market well cleaned up under a normal demand.

Large Broilers, per lb.	23 @ 24 c
Small Broilers, per lb.	25 @ 27 c

Guaranteed Gas Engines At Remarkably Low Prices

Here's an opportunity to obtain a new high-grade standard gas engine at a great reduction. We are overstocked on the following sizes, hence this price-cutting sale.

1½ H.P. Horizontal Type, \$	39.50 F.O.B. San Francisco
4 " " " " "	88.00 " " " " "
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IF YOU NEED A GAS ENGINE HERE'S A
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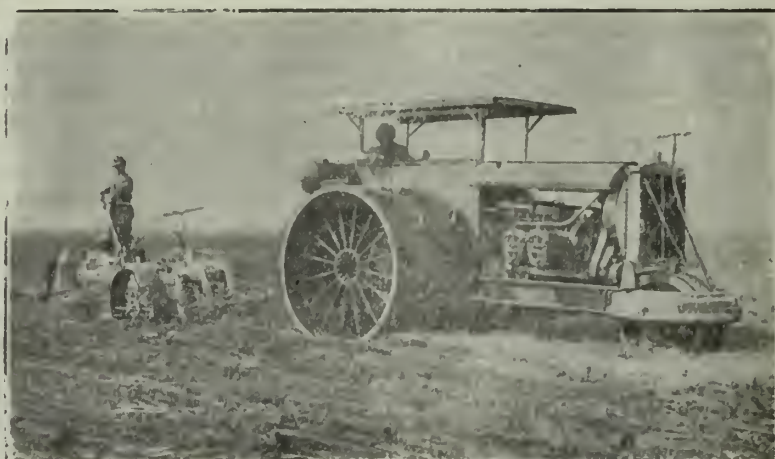
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Pierson, Head & Co.

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AJAX GAS TRACTION ENGINE



This is the strongest, most satisfactory and economical traction engine on the market. It uses gasoline or distillate, will turn in its own length and has sufficient power for all purposes. Will operate on ANY kind of ground and has a power steering device. Fully guaranteed. Send for literature to Pierson, Head & Co.

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are expert installers of high-grade pumping machinery driven by electric motors or gas engines. All the machinery we handle is of true and tried merit.

ALL INSTALLATIONS FULLY GUARANTEED.

ESTIMATES AND CATALOGUES
SENT FREE UPON REQUEST.

Fryers, per lb.....	22	@23	c
Hens, extra, per lb.....	15	@17	c
Hens, large, per lb.....	15	@16	c
Small Hens, per lb.....	16	@16	c
Old Roosters, per lb.....	10	@12	c
Young Roosters, per lb.....	18	@20	c
Squabs, per doz.....	\$ 3.00@	3.50	
Geese, per pair.....	1.50@	2.00	
Ducks, doz.....	4.00@	6.00	
Turkeys, dressed.....	22	@24	c

BUTTER.

The week opened with a little more firmness, but extras have dropped back to the quotation of a week ago, and are only steady as quoted. Arrivals are fair, and supplies ample for local needs.

Thu.	Fri.	Sat.	Mon.	Tu.	Wed.
Extras ...33	33	33	35	34	34½
Firsts ...31	31	31½	31½	32	32½

EGGS.

The expected decline in eggs has occurred, and during the entire week extras have been quoted below 20c, the present figure being the lowest of the season. Arrivals are very heavy, and there is no business at present either for shipment or storage, the storage situation being unsatisfactory. The market is described as steady at present quotations, but supplies are still excessive.

Thu.	Fri.	Sat.	Mon.	Tu.	Wed.
Extras ...18½	19½	18½	19	18½	17½
Firsts ...18	18	17	18	17½	16½
Selected					
Pullets...16½	16½	16½	17	17	16

CHEESE.

Flats and Y. A.'s show a firmer tone than for some weeks past, both grades being quoted higher. Monterey cheese, however, continues plentiful and easy.

Fancy California Flats, per lb.....	17½c
Firsts	15 c
New Young Americas, fancy.....	18 c
Monterey or Jack Cheese.....	16@16½c

Deciduous Fruits.

The local demand for apples has been fair for the last week, with quite a large movement on some days, but on the whole the situation shows hardly any improvement. Supplies appear to be about as heavy as before, and dealers are getting anxious to sell, though fancy stock is still held at full prices. Values stand as last quoted.

Apples: Fancy Red, box.....	75c@	1.25
Red Pears.....	40@	60c
Bellefleur	65c@	1.00
Newtown Pippins, 3½ to 4-tier	85	1.35
Common	40@	60c

Dried Fruits.

The market is dragging as for some time past, and packers report a somewhat easier feeling in several lines, although prices on all descriptions stand as last week. There is no local business of any consequence, and neither Eastern nor export buyers are taking any interest, although a revival of Eastern business is expected before long. Apricots and peaches are well out of growers' hands, but packers are well supplied and do not look for any shortage. Apples are entirely neglected, with heavy offerings, and there is still a large tonnage of prunes in the country, with no present demand for anything in this line. Many growers are holding out for better values, but there is some tendency to accept the prices quoted or even less. Raisins are not moving, and while the prices offered have not been reduced, packers show little disposition to buy. The New York Journal of Commerce says:

"While trade in both spot and forward shipment goods is never active at this time of the year, the dullness now existing seems to be more pronounced than usual. The underlying cause is attributed to the very light consuming trade, which is variously assigned to a very mild winter up to the present time, competition of cheap fresh fruits, particularly apples, and the reluctance of the retail trade to encourage consumption by making prices that bear a closer relation to the present wholesale cost than to those upon which original purchases were made.

"The slack demand for f. o. b. shipments of California prunes is inducing some, at least, of the packers on the Coast to make price concessions. Offerings of 40s in Santa Clara stock are made here on a 4c f. o. b. four-size bulk basis, while from some quarters 50s to 90s are available on a 2½c Coast bulk four-size basis.

"There is little doing in apricots on the spot, but apparently no demand for fu-

tures. Forward shipment prices on these two varieties seem to be held with confidence, in spite of the slack demand.

"Raisins on the spot remain dull, and no interest seems to be shown in forward shipments from the Coast. The market has an easy tone, though prices are without quotable change."

(New crop.)

Evap. Apples, per lb.....	3½@	5 c
Apricots	9	@10 c
Figs: White	3½@	4½c
Black		3 c
Calimyrna	4	@ 5 c
Prunes: 4-size basis.....	2½@	3½c
(Premium: 1c for 40s-50s; 2c for 30s-40s.)		
Peaches	4	@ 4½c
Pears	4	@ 7 c
Raisins—		
Loose Muscatels in sweatbox	2¼@	2½c
Thompson's Seedless.....		4½c
Seedless Sultanas	3	@ 3½c

Citrus Fruits.

The orange markets in the East are still in poor shape, but ought to pick up soon, as but very little California fruit is being sent out. Last week less than 200 cars of navels were sent East, and so far this season only about 5300 cars have been shipped. A year ago at this time about 1000 cars a week were rolling East. Prices at Eastern auctions are very low, caused by frozen fruit and fear of it.

At New York, Monday, February 17th, the citrus auction showed prices averaging from \$1.10 to \$3.40 per box, with most of the sales being around the \$1.60 mark. The Pittsburgh price was a little lower than the above, while Cincinnati, Philadelphia, and Cleveland showed about the New York average. Lemons were also lower, though the prices are still good. At the various auction points the prices varied from \$3.05 to \$5.15 per box.

The way the orange trees are recuperating from the effect of the frost in most districts is very gratifying. New growth is starting, and blossoming will be earlier than usual, giving promise that the groves will be in good condition next season.

The San Francisco market shows little change, though the local demand is perhaps a little better. Supplies of oranges, however, are still rather heavy, and offerings of frosted fruit are large. With limes out of the market, small lemons still bring high prices, though ordinary lemons are easier. Grapefruit is scarce, good Florida stock bringing \$5.50.

Oranges, per box—

Navels, good to fancy.....	\$2.00@	3.00
Frosted	50c@	1.00
Tangerines	1.00@	2.50
Grapefruit, seedless	1.50@	3.50
Lemons: Fancy	6.50@	7.00
Choice	5.00@	6.00
Standard	3.50@	4.00

Nuts, Honey, Hops, Etc.**NUTS.**

California stock is closely cleaned up everywhere, few dealers having complete assortments, and values are firmly held. Trading is limited both by the scarcity and the absence of any heavy demand at this season. With nothing offered in the country, local market prices are quoted.

Almonds—

Nonpareils	17½c
I X L	16½c
Ne Plus Ultra.....	15½c
Drakes	12½c
Languedoc	11½c
Hardshells	8 c

Walnuts, 1912 crop—

Softshell No. 1.....	16	@16½c
Hardshell No. 1.....	15	@16½c
No. 2		10½c
Budded		17 c

HONEY.

Local supplies have been considerably reduced, the demand being fair for this season, and with little offered for shipment there is an upward tendency in prices, especially on the fancy grades.

Comb, white	12½@	14½c
Amber	10	@12 c
Dark	9	@10 c
Extracted, white	8	@10 c
Amber	6½@	7 c
Off Grades	5	@ 6 c

BEE SWAX.

There has not yet been much business, but the market is fairly firm, and local handlers are holding out for the prices quoted.

Light	30	@31 c
Dark	25	@26 c

HOPS.

Fancy stock is quoted a little higher on inquiries for shipment, but there is no great activity, the bulk of the crop being cleaned up.

1912 crop	12½@	21 c
-----------------	------	------

WOOL.

Local buyers are not yet taking any interest, as nothing is offered from the spring clip, and no activity is expected for several weeks at least.

Fall Clip:

Northern and free Mendocino	12	@14 c
Lambs	9	@13 c
San Joaquin and Southern.....	6	@10 c
Mohair	15	@28 c

HORSES.

The spring demand for stock for city use is starting off in good shape, with many inquiries from local buyers for all classes suitable for the purpose. The lack of rain seems to be keeping down the country demand, though there is a fair amount of inquiry from outside buyers, and all arrivals in the near future are expected to find ready sale. Several large lots of Oregon and Utah stock, as well as a good many ordinary horses from nearby points, are being auctioned this week.

Heavy drafters, 1700 lbs. and over	\$300@	350
Light Drafters, 1500 to 1650....	250@	285
Chunks, 1350 to 1500 lbs.....	200@	250
Wagon Horses, 1250 to 1350....	180@	225
Delivery Horses, 1050 to 1250....	125@	150
Desirable Farm Mares.....	100@	125

Live Stock.

All descriptions of live stock are very firm, notwithstanding the rather slow demand for dressed meat, and a further advance is noted in cattle and sheep, as well as heavy hogs. Dressed meats are unchanged, young veal being rather easy.

Steers: No. 1	7¼@	7½c
No. 2	6½@	7 c
Cows and Heifers: No. 1....	6¼@	6½c
No. 2	5½@	6 c
Bulls and Stags.....	2½@	4½c
Calves: Light		7¼c
Medium		6¾c
Heavy	5	@ 6 c
Hogs: Grain-fed, heavy.....	7¼@	7½c
150 to 250 lbs.....	7½@	7¾c
100 to 150 lbs.....	7¼@	7½c
Prime Wethers	5¾@	6 c
Ewes	5	@ 5½c
Lambs	7	@ 7½c

DRESSED MEATS.

Steers	11¼@	11½c
Cows	10½@	11 c
Heifers		11 c
Veal, large	10	@11 c
Small	12	@13 c
Yearlings	11	@11½c
Mutton: Wethers	9½@	10½c
Ewes	9	@10 c
Spring Lambs	12	@13 c
Dressed hogs	11½@	12 c

HIDES.

There is a fair movement in some lines, and prices are steadily maintained, although there is no particular firmness to the market. Quotations show only a few minor changes.

Heavy Steers, over 56 lbs.	14 c
Medium	13½c
Light Steers, under 48 lbs.	12½@13½c
Heavy Cows, over 50 lbs..	12½@13½c
Light Cows, 30 to 50 lbs..	13½c
Kip	14½@15½c
Veal	17 @18 c
Calf	17 @18 c

Dry—

Dry Hides	23	@24 c
Dry Kip, 10 to 15.....	24	@25 c
Dry Veal, 5 to 10.....		29 c
Dry Calf, 7 down.....		29 c

Horse Hides—

Salt: Large	\$2.25
Medium	1.75
Small	75c
Colts	25@ 50c
Dry	75c@ 2.00

Sheep Skins—

Long Wools	\$ 0.85@	1.25
Medium Wool, 6 to 9 mos..	60@	90c
Short Wool, 3 to 6 mos....	40@	60c
Lambs	35@	70c

PUBLISHER'S DEPARTMENT.**NEW BOOKS RECEIVED**

We have from the Orange Judd Co. of New York two new books of great interest to young farmers. One of the books is by Dr. Thomas F. Hunt, the new Dean of the College of Agriculture, University of California, entitled "The Young Farmer; Some Things He Should Know." The following table of contents will indicate the nature of splendid suggestions and advice in pointing out the things the young farmer ought to know: Essentials of Success, Means of Acquiring Land, Farm Organization, Opportunities in Agriculture, Where to Locate, Size of Farm, Selection of Farm, The Farm Scheme, The Rotation of Crops, The Equipment, How to Estimate Profits, Grain and Hay Farming, The Cost of Farming Operations, The Place of Intensive Farming, Reasons for Animal Husbandry, Returns from Animals, Farm Labor, Shipping, Marketing, Laws Affecting Land and Labor, Rural Legislation, Rural Forces. Illustrated. 288 pages. 5 by 7 inches. Cloth, \$1.50 net.

The other book received is by Prof. C. W. Burkett, "First Principles of Feeding Farm Animals." This is the most comprehensive and best illustrated book on feeding the animals of the farm. As its title indicates, the book discusses the first principles of stock feeding. It is of simple construction, takes up the subject step by step, making it possible for the practical man or student to understand fully both the science and the practice of this important subject. The book is more than a statement of principles; it is an interpretation of the entire science of feeding. Illustrated. 5 by 7 inches. 355 pages. Cloth, \$1.50 net.

We trust that all of our subscribers who were expecting to receive the Ettersburg strawberry plants have been supplied. If you did not get yours, read the article of Mr. Etter's in this issue, then write to him or this office. The dozen plants sent by Mr. Etter to us arrived last Saturday in fine condition. Regarding the work in getting all the orders through the mail, Mr. Etter writes: "It is some little work to get out all those packages, but I am more desirous of doing it right that of careless packing and mailing. The mail-carrier has all been can handle, and the Miss at the post-office says she is nearly 'licked' to death. She has bought up all the parcels post stamps in the nearby offices and ordered more. She says she will have every post-office in the State at her finger tips before she gets through 'zoning' all the packages."

One of our subscribers at San Jose writes us on February 16th, saying that his plants were received in fine condition and are the best rooted he had ever seen. He has ordered from Mr. Etter 100 more plants. Another party writes from Orosi, on the 17th, that his plants arrived in fine condition. We want, and we know that Mr. Etter wants, everyone to whom plants were sent to be perfectly satisfied.

An active demand in California for stock is proven by the statement of T. S. Glide, of Davis, who says he has sold completely out of bulls and could have disposed of one hundred more. He says in a note to us that he received a great many inquiries from people who read his ad. in the PACIFIC RURAL PRESS. Mr. Glide will soon have his announcement in our columns, offering some exceptionally fine rams from the bucks he imported from England two years ago.

Glenn county, which has been without a horticultural commissioner, has come into the ranks of the live horticultural counties, governmentally, that is, as the county has been the liveliest of the live the last couple of years. Carl L. Levy is the new commissioner.

The Natomas Consolidated is planning to build a town at Jura, which is on the line of the Sacramento & Placerville railroad. The place is located at a newly developed irrigated district.

Ship your **POULTRY, EGGS, HONEY, DRIED FRUIT, RAISINS, NUTS, DRESSED CALVES**, and Produce of all kinds to the old Reliable firm of **W. C. PRICE & CO., 211, 213, 215 Clay St., San Francisco, Cal.**

Highest market prices and immediate cash returns guaranteed. Liberal advance made on all shipments. Consignments and correspondence solicited. Write us before shipping elsewhere.

Pump — durability

"THE FIRST COST SHOULD NEVER DETERMINE THE PURCHASE OF A LABOR-*SAVING MACHINE*. The ultimate cost is the thing to be considered; and that is the sum of first cost plus the cost of maintenance. There comes a time sooner or later when the ultimate cost is twice or thrice or many times the first cost. Just when that time will come depends upon the wearing power of the tool. If there is anywhere that quality counts, it is in a machine tool. For 'Quality' is that element in a machine which keeps the ultimate cost down by keeping down the cost of maintenance. It pays to buy 'Quality' machines."

Layne-Bowler Pumps

always give satisfaction because they always prove cheapest in the long run. Our many follow-up orders from people who have used our pump before prove this.

There is no complex mechanism—no going down into the pit to tighten bolts, etc. Any adjustments are made at the pump-head. We have pumps now running in many parts of the country which have never had a dollar's worth of repairs.

If economy and money saving is any object to you, you owe it to yourself to investigate the Layne-Bowler Pump.

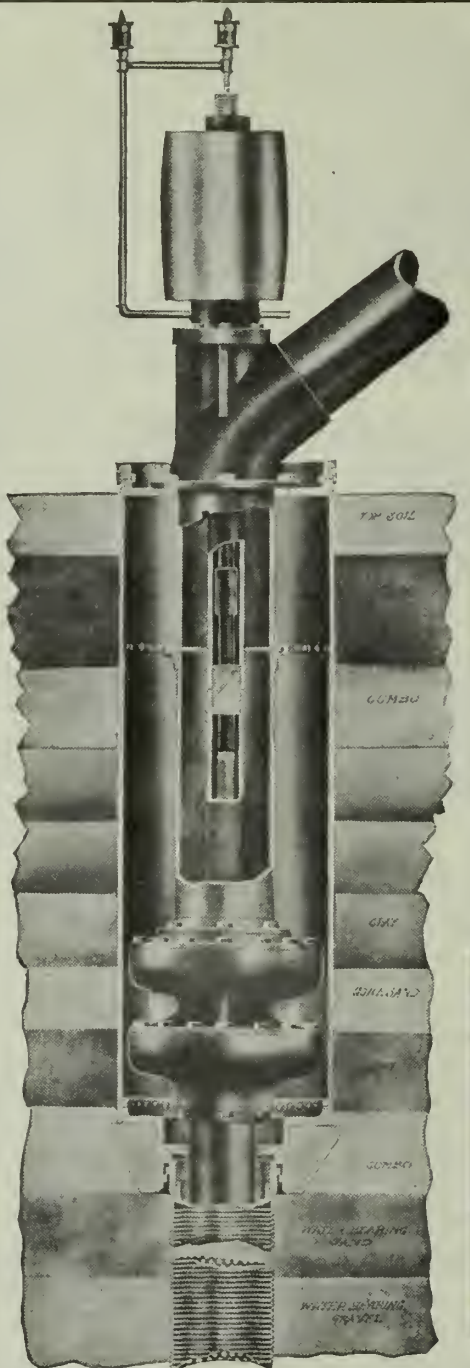
And, remember, that the Layne-Bowler Pump is a pump that *always* runs when you want it to.

Send for Catalog No. 25.

Layne & Bowler CORPORATION

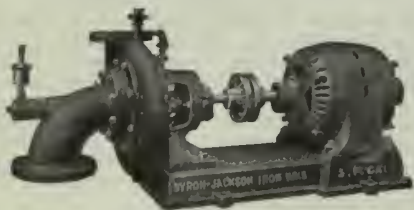
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Jackson "1912" Direct Connected Pump.

This is the result of years of specialization, designing and testing along scientific lines.

The "1912" Jackson Bulbaling Device is a valuable feature which operates automatically and permits the pump to be run with practically no attention.

Write for our Catalog No. 47, which describes all the special features of this pump.

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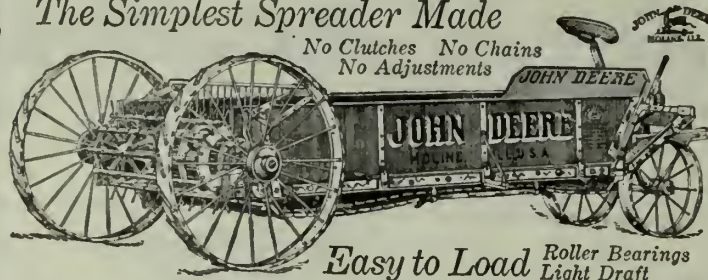
We are the original builders of irrigation systems. Our Gates and Valves are perfected products of years of experience as practical irrigators and manufacturers. We can prove our claim to having the system that will yield the greatest returns on the investment, from the standpoints of initial cost, ease of operation and saving of water and labor. Cut out this ad, mail to us and we will forward out booklet on Modern Irrigation Methods. **KELLAR-THOMASON CO.** 1226 E. 28th St., Los Angeles, Cal.

John Deere Spreader

The Spreader with the Beater on the Axle

The Simplest Spreader Made

No Clutches No Chains
No Adjustments



Easy to Load Roller Bearings
Light Draft

Decided Improvement in Spreader Construction

Up to this time every spreader on the market has been constructed along the same general lines.

The John Deere Spreader, however, is different. It is entirely new and there is nothing else like it on the market.

All the working parts are mounted on the main axle. There are no strains and stresses on the sides or frame and no clutches or chains to give trouble.

The John Deere Spreader is low down, easy to load, very simple, and always ready for business. It cannot get out of order.

three feet. Thus, the hard work of loading a manure spreader is done away with. Besides, the person doing the loading can see inside the spreader at all times. Each forkful is placed exactly where it is needed.



Easy to Load

No Adjustments

On the John Deere Spreader no adjustments are necessary. On the simplest spreader heretofore made, it was always necessary to make from ten to twenty adjustments before the machine would work at all.

John Deere Spreader is thrown in gear by moving a heavy dog back until it engages a stop at the rear of the machine. No clutch used.

Positive Non-Racing Apron

By the use of a very simple locking device inside the ratchet feed, the apron is positively locked against racing when spreading up hill or over exceedingly rough ground. The result is that when spreading with the John Deere Spreader the manure is always spread evenly. This is not possible on any other ratchet feed spreader made.

Change of Feed

Change of feed is accomplished by a double shoe which is moved from the seat. This shoe determines the number of teeth the ratchets engage at each stroke. The John Deere Spreader has a variation of from five to twenty-five loads to the acre.

Substantial Steel Frame, Like the Modern Railway Bridge

Both the side sills in the John Deere Spreader are of high carbon channel steel with the channels turned to the inside. Into these hollows are fitted four large wooden cross sills. Being bolted, these cross sills can be kept tight, insuring rigidity and alignment of frame at all times.



Built Like a Steel Bridge

Easy to Load

The first three feet manure is lifted with an ordinary spreader are easiest of all. The real hard work is from this height to the top of the ordinary spreader.

The John Deere Spreader is low down. It is only necessary to lift each forkful

Even if You Don't Need a New Spreader Now, Come in and See It.

JOHN DEERE PLOW CO., SAN FRANCISCO

YUBA CENTRIFUGAL PUMPS

YUBA HIGH GRADE IRRIGATION PUMPS

Direct connected or belt driven. We build pumps varying in size from two inches up.

Special features to reduce operating costs worked out in the field. DURABILITY, EFFICIENCY, ECONOMY. Write us for particulars and prices.

THE YUBA CONSTRUCTION CO.

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WATER PIPE

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"CALIFORNIA FRUITS AND HOW TO GROW THEM"

For sale by PACIFIC RURAL PRESS, 420 Market Street, San Francisco

THE PACIFIC RURAL PRESS

Vol. LXXXV. No. 9.

SAN FRANCISCO, SATURDAY, MARCH 1, 1913.

Forty-Third Year.

DAIRY BUILDINGS AND PLANS.

In the biennial report of the State Dairy Bureau recently issued, the secretary, F. W. Andreasen, has prepared the plans for dairy barns along lines that investigations and experience have proved best for sanitation and convenience. These were prepared as a result of the great number of inquiries on dairy construction and should be of great value. Both illustrations and the explanation are used by the courtesy of the Bureau.

The ground plan shows a good location for the buildings of a dairy. First, it should be determined from what quarter the prevailing winds come, and the location of the milk or separator house should be such that the wind blows from the milk-house to the stable and not so that the odors and dust from the stable are carried to the milk-house.

Clean Milk.—The milk-house should be convenient to the stable, so that the milker will carry the milk to the house as soon as he has one bucket full. The practice of each milker having two buckets and putting one down on the floor behind the cow while he is filling the other is bad. First, dirt and excrement get into it; second, the milk takes up odors from the stable, and the quicker it is taken out the better; third, if the milk is taken to the milk-house and run over a cooler, bacterial development will be retarded. The immediate cooling of the milk is as important where butter or cheese is to be made from it as it is where market milk is produced, because the bacteria that develop in the milk while it has animal heat in it are very injurious to butter and cheese making. For these reasons, the location of the milk-house has been marked on the ground plan six or eight feet from the end of the cow stable.

It is planned that the floor of this stable should be so constructed that the urine or manure cannot soak through it and remain underneath to ferment and decay. This is best prevented by making it of concrete.

Milk-house Location.—The space between the cow stable and the milk-house should be a passageway, so that the air can have free circulation, but the roof of the milk-house should extend over it and connect with the stable. There should be a self-closing door in the stable and also in the milk-house, so that not more than one of them would be open at the same time.

The milking-shed as shown will stanchion eighty-eight cows. If only half that number, or up to sixty cows, are to be kept on the place, a milking-shed accommodating two rows of cows and with an ordinary roof would be the most practical, as plenty of light can be procured by having windows on each side. The feed alleys could then be on each side of the shed next to the walls.

Hay Barn.—If hay is to be fed during part of the season, a place

to store it must be provided, at least in those parts of the State where it rains occasionally. At one end of the milking-shed is the ground plan of a barn in which to store the hay. One side of this can form one end of the milking shed. At the end of each feeding alley should be a chute where hay can be thrown down, which should be done directly after the cows are turned out and the stable cleaned. No hay should be handled in the milking-shed while the cows are being milked, nor just before milking. The hay barn shown in this cut is 40 by 80 feet and will hold about 128 tons of loose hay, not counting what could go in the roof.

The law provides that cows shall not be milked within 50 feet of any accumulation of manure, or within 50 feet of a horse stable. If the driveway between the stanchions and the hay barn is left as wide as indicated in these plans (12 feet), the hay barn could be built somewhat narrower, which would make it easier to stow away the hay, and the distance between the cows, horses and manure pits would still meet the requirements of the law.

Corral.—In order to keep the surroundings of the milking-shed and milk-house clean, the cows should never be allowed to linger around these buildings. There should be doors in the shed at the end where the milk-house is situated, but they should only be used as exits in case of a fire.

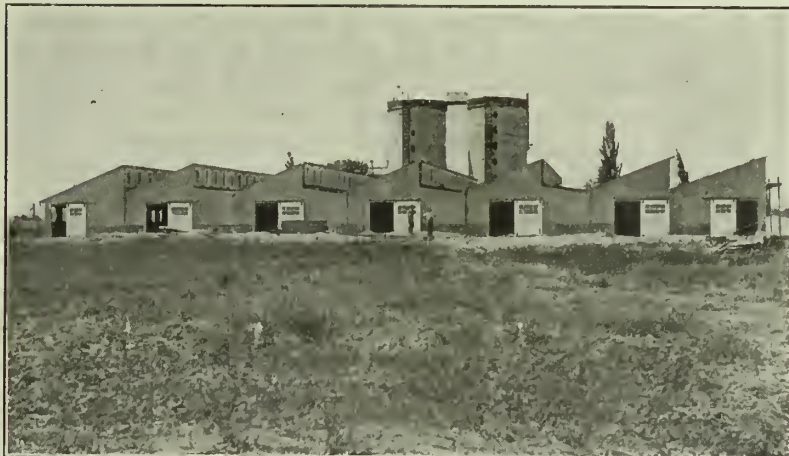
A passageway through the hay barn 12 feet wide and about 8 feet high, through which the cows should enter, is marked in this ground plan. They would then always gather around this door at feeding time and the surroundings of the milking-shed could be as free from contamination as the surroundings of a dwelling house. It is around the door where they enter the stable that the whole herd will stand, sometimes for hours, and their droppings are tramped into the ground when it is wet and later ground into dust.

The milking-shed need not be fenced off so that the cows cannot come near it. It can be in the pasture, as the fact that they come

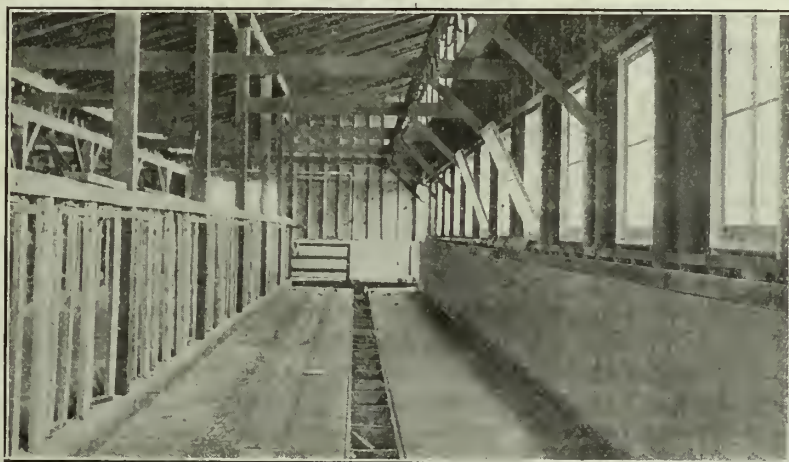
come up to it occasionally to eat the grass would not cause any contamination, but they should not be allowed to roam around the milk-house.

Manure Disposal.—The best, easiest and cheapest way to dispose of the manure would be to place it in a manure spreader and haul it onto the land every day. The manure must not be allowed to accumulate within 50 feet of the stable, nor within 100 feet of the milk-house. If it cannot be hauled away every day, manure pits should be provided back of the hay barn and the gangway through it by which the cows enter the shed could be used to wheel the manure through. The manure pits should be of concrete, except the heavy doors on each side, which should be so constructed that they could be taken away when it was desired to remove the manure.

The pits should be covered, but doors should be provided in the



Elevation of Dairy Barn and Silos.



Interior View of Cow Stanchions and Alleyway.

(Continued on Page 275.)

Pacific Rural Press

Issued Every Week at 420 Market Street, San Francisco.

TWO DOLLARS PER YEAR IN ADVANCE

Entered at S. F. Postoffice as second-class mail matter.

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FRANK HONEYWELL - - - - - Manager
W. H. SCHRADER - - - - - Adv. Manager
D. J. WHITNEY - - - - - Associate Editor

CALIFORNIA WEATHER RECORD.

The following rainfall and temperature record is furnished the PACIFIC RURAL PRESS by the United States Department of Agriculture Weather Bureau, at San Francisco, for the week ending at 5 p.m., Feb. 25, 1913.

Stations.	Rainfall Data.			Temperature Data.	
	Past Week.	Seasonal to Date.	Normal to Date.	Maximum.	Minimum.
Eureka .....	.50	25.51	30.83	48	32
Red Bluff .....	.40	13.61	17.25	60	34
Sacramento .....	.12	5.50	13.69	60	32
San Francisco ..	.34	9.25	15.99	60	42
San Jose .....	.06	4.02	11.42	62	30
Fresno	1.40	4.19	6.33	56	30
Independence ..	1.20	3.69	6.22	48	16
San Luis Obispo ..	1.38	6.17	13.63	56	32
Los Angeles	7.58	11.92	10.68	56	40
San Diego	1.79	5.23	6.93	60	40

The Week.

The rain has been a great joy, and the measure of it, here and there, is given in the table above. The downpour seems to have been enough for present needs everywhere and a great deal more than that in some places. It seemed defective in point of distribution surely to those who were in Los Angeles at the time and found the sloping streets turned into wide sluice-boxes and the level ones into mill-ponds, but Los Angeles gets out of such trouble about as fast as it gets into it, and is quite willing to suffer a little for the sake of its rural environment, which certainly needed its share of the deluge. The rain will put a new face on very large areas of the State, and if it proves to be the last freaky feature of this year's weather, people will like it all the more. We shall go into March in good shape and the normal behavior of March will see things through to full production.

Uplifting the Farmers.

The social reformer seems to take naturally to the uplifting of agriculture; the progressive exporter adheres to agricultural debasement like a duck's foot to the mud. This has been the fact for thousands of years. It is true that the empire builders of classic times lifted the farmers by the neck, and those of recent times lift them by the pockets of their trousers, but what matter is that so long as they go up. And it seems to be a world pastime now. We have had our American forms of uplift in operation for several years, and now the elevation of farming is the basis of advanced English statesmanship. One might think that the following words were from an oration by one of our jingo statesmen; but no, they are from a speech of a British Cabinet minister, David Lloyd George, Chancellor of the Exchequer: "The foremost task of Liberalism in the near future is the regeneration of rural life—the emancipation of the land of this country from the paralyzing grip of a rusty, effete and unprofitable system." And this does sound a little strange when one re-

members what has been said about the prosperity, independence and loyalty of the British farmer—the main pillar of strength and durability of the British Empire. We imagine Mr. Kipling may strike out at Mr. George about his impeachment of British rural life, for he has a good sharp tory knife for such disloyalty. But that is none of our business—let them settle that between themselves. What will make the British farmer madder than the general impeachment will be the specifications, like these: "When the reports of the investigating commission are published they will prove conclusively that there are hundreds of thousands, if not millions, of men, women and children living under conditions with regard to wages, housing and the rest of labor conditions, which ought to make this great empire hang its head with shame. They will prove by unchallengeable facts that this rich country does not provide decent homes for the laborers engaged in an occupation which is vital to our very existence."

We presume there is a lot of truth in that so far as the statement refers to ancestral land owners, who treat their tenants in such a way that they cannot do much better than they do in providing for their laborers, but the false light which is thrown in the eyes of the world is the inference that the actual producer of food products is grinding the face of his laborers in that shameful way. That inference is wrong, according to our best knowledge and belief. It is not the disposition of the employing farmer in any enlightened country known to us to do that. He is more apt to give his help all his business will stand than any other employer known to us. If the condition of the British farmer laborer makes the "great empire hang its head with shame" it is too bad certainly. The "great empire" ought to straighten up and change it all. Perhaps that is what Mr. George means but dare not say so. He just throws it out and it falls on the crown of the employing farmer, where it does not belong. Such things have happened even in this country.

Farm Organization Not a Trust.

We get an inkling that there may soon be a better understanding of this proposition before long, and it comes through Congress that both the farm employer and the farm laborer may be able to do what is necessary for the greater general prosperity of the industry without being arrested as a bad trust. Last week in Congress an amendment offered by Representative Hamill of New Jersey was adopted, providing that no part of an appropriation of \$300,000 authorized for the enforcement of the anti-trust law should be expended to prosecute any voluntary organization of workmen. A similar amendment applying to farmers' co-operative organizations, offered by Representative Roddenberry of Georgia was adopted. Thus a very important matter is started on its way. It involves recognition of a principle of organization for self protection which is calculated to do much more good than the ringing outcry of Chancellor George, because it is not destructive impeachment, but constructive power. If it prevails, prohibition of the prosecution of labor unions and farmers' organizations under the Sherman anti-trust law by the Department of Justice will be provided. This is very fortunate, for the threatened "unserambling" of farmers' co-operative organizations has hindered a most important movement.

The Farmer Does Not Deserve Denunciation.

A demonstration of all that has just been suggested may be found in the call for a conference recently made public at Chicago on this basis: "The great paradox of our times—the people are

complaining of the high cost of living and the farmer at the same time is finding that his business is not profitable." It is a call for a national conference on marketing and farm credits to be held at a future date, not announced. It is too much to claim that farming as a whole is not profitable, but it is true that it does not pay up to the popular notion of it. The purpose of the conference will be, of course, to find out why consumers pay so much and producers get so little. It is a problem of the ages, but effort should still be made to settle it. Chancellor George should arrange to attend this conference. It might help him in his business.

Another Farming Uplifter.

While Chancellor George is putting a new tail to his political kite, let us look at another agricultural uplifter who can claim a certain flossiness. Governor Sulzer of New York is a regular jack-screw when it comes to agricultural elevation; he not only jacks it up himself, but he sets others to jacking. The parable runs that a certain rich man named Astor recently came to Governor Sulzer to know what he could best do for the salvation of his fellow-men. There was a certain rich man once who was anxious about himself, but Vincent Astor is too altruistic for that. Governor Sulzer knows of many things to do for mankind, and he told Mr. Astor of nine things he could do for humanity. He reported that Mr. Astor was not much interested until he was told of the needs of agriculture, and then he lifted up his voice and spoke: "That is my field; that is what I would like to do. I have one of the finest farms in the State of New York down along the Hudson river. My father never did anything with it. I am going to make that farm an experimental farm along scientific lines, and everything I do there will be told to the people of the country."

We have no reason to discount Mr. Astor. We believe he means that all the important discoveries he makes will be told to all the people and thus enable them to do better, become richer and more happy—so that the great American empire may no longer hang its head with shame for their sufferings. That is a noble motive, but it occurs to us that not all those who are at the job of uplifting agriculture can be credited with such disinterested philanthropy as Mr. Astor has. They wish to do something that "will be told to the people of the country." We have no doubt about that.

Other Altruisms.

It is really interesting how much trouble some people make when they try to be altruistic. The 8-hour law for women workers is of that class. As we have said before, it may be a good thing in certain occupations, but in its agricultural relations it is a fright and is being earnestly fought at considerable cost by the women who wish to work with fruit, hops and other agricultural products as the nature of them requires. Women fighting for a chance to earn money in fresh air, is really the size of it, and they have to fight for it because certain uplifters wish to help other women working with other things in other places. It is making a great trouble and is likely to cripple some farming industries unless these industries are kept out of the upward current. At San Jose last Saturday there was a large gathering of fruit growers to protest against the amendment which will rob them of fruit handlers. Not long ago there was a hue and cry that fruit growers should not employ Asiatics, but give the work to our women and children. Many of them did that, partly because of the outcry, partly because they preferred to have white help. They are hardly settled in this course before the eight-hour law

comes along and will prevent people working "by the piece" from doing it as long as they see fit. And the San Jose people had to subscribe money to hire people to tell the legislature, what the legislature ought to know for itself, that the eight-hour law in agriculture is contrary to all history and common sense. Besides, the San Jose fruit growers find that a bill recently introduced in Congress, withholding from interstate commerce all goods made in shops where women work more than eight hours a day will interfere with fruit canning and other fruit industries, and so they had to telegraph our congressmen to try to stop that. We said near the beginning that it was the custom of classic conquerors to uplift the farmers by the neck. It looks very much as though the social conquerors were catching the same hold.

Arbitrary Roads.

There is another thing at Sacramento which seems on its face to be a beneficence perhaps, but the deeper one looks the less he likes it. The general claim is that small farms in many parts of the State will be made more accessible, and much land now isolated by reason of the fact that roads cannot be condemned across big ranches will be made easy of entry if Senate bill 1025, by Larkins, becomes a law. Senator Larkins proposes to condemn for county roads twenty feet upon each side of section lines running through agricultural land. We are perfectly aware that there are many blocks to enterprise any many hardships to individuals because roads cannot be run through large tracts, but to remedy that by opening roads arbitrarily through improved property whether they are needed or not and without relation to existing roads which may not be on section lines is likely to cause a great loss of property and be otherwise an intolerable nuisance. There ought to be ways (if there are not already) by which greatly needed roads can be secured, but such a general enactment, possible for the purpose of a single project, should certainly be carefully looked after by owners of agricultural property. It strikes us as unreasonable, as any such arbitrary thing is apt to be.

Queries and Replies.

Querists must submit full names and addresses.

Growing Kale.

To the Editor: I notice several writers in the PRESS advocate the planting of kale as a green feed for cows, but they give no details about growing it. Should it be started in a hot bed, like cabbage and tomatoes, or in a well manured bed in the open garden, or may the seed be planted in the field where it is to remain? When is the best time to plant it? Will frost injure it? Is there more than one variety, and, if so, which is the best?—M. D. A., Willow.

We have given full details in earlier issues. A good garden bed will do to start the plants, or seed boxes in an open, protected place. They do not require as much heat or protection as tomatoes; they are like common garden cabbage in their requirements. To get a good stand the plants should be grown and transplanted. Seed in the open ground is wasteful of seed and usually gives a poor stand. Start your plants at once and plant out as soon as ready. They ought to have been started in the fall, as the plants are not injured by our ordinary winter frosts. The Oregon kale and the Jersey kale are best for stock feeding.

Strawberry Plant Louse.

To the Editor: I have two acres of strawberries. Last year some part of it was greatly injured by insects. They are very small, but there are so

many on one bush that soon the leaves and crop become pale and small. They appear in April. How can I kill them or protect the plants? The insect is like this: (drawing)—N., Sanger.

Our querist makes a good drawing of an aphid, life size, which proclaims him no mean artist. If you have not yet thoroughly raked up and burned all old leaves and rubbish, do it at once. Where lice occur, this ought to be done early in the winter. Get a good force pump and cyclone nozzle, which can be held near the ground to spray upward. Watch carefully the undersides of the new leaves as they come out, and as soon as you can see any lice, go to spraying with kerosene emulsion, soap solution, tobacco tea or any preparation which is sold for plant lice. They are easy to kill; the trick is to hit them, which is harder. Begin early and keep at it so they will have no chance to multiply. If you wait too long you cannot catch up. When your high, dry heat comes on, the game will be up for them—but you must fight early.

Gumming of Young Peaches.

To the Editor: In working around my peach trees I find on some a jelly-like substance just below the top of the ground, almost always at the crown of the seedling stock. I have examined them closely with a good glass, and can find no insect of any kind. The outer bark does not look healthy, but underneath the bark the wood looks perfectly healthy. These trees were set out a year ago this last January, and made a fine growth last season, and are budding out fine now. Can you tell me what the trouble is, and, if anything serious, what is the remedy? I watered them pretty late last fall. Could that be the cause of it?—J. M., Plymouth.

We will take it for granted that the gum is clear and not mixed with wood fiber and excrement, and that you did not overlook the work of a root-borer. If so, the bark discoloration and gumming may be due to burning from the hot surface soil. Of course, it is possible that water may have caused injury if it stood for a time in contact with the bark. Remove the gum, whitewash well, and the tree will heal the injury if it does not cover too much space.

Grafting.

To the Editor: I did a little grafting last spring, and as it was my first attempt, about ten per cent of the scions failed to grow. Now what shall I do? Saw the stub off lower down and try again, or bud into one of the sprouts that have grown around the cut end? The trees are pear and cherry. Also, I would like you to publish formula for a good grafting wax.—B. F., Hemet.

You did very well as a beginner not to lose more than one-tenth. Saw off below and graft again. You might have budded into one of those shoots last July, and if you fail again, bud into the new shoots next summer. We have given good grafting wax recipes lately: one in Mr. Fawcett's paper on tree diseases and another in the discussion of frost injuries to citrus trees.

Get More Water Into the Soil.

To the Editor: Last May I irrigated my 18-year-old prune trees for the first time, again during the first two weeks of last December. I intended to plow after irrigating, but the soil remained too wet on the surface until about two weeks ago. The grass has grown very little so far on account of low temperature. We had about as much rain here as there was in San Jose. If no rain should come within the next two weeks, would you advise me to irrigate then? Should I plow before irrigating, or should irrigation be done before the buds swell?—J. H., Gilroy.

Unless your ground is deeply wet down by the rains which are now coming, irrigate it once, and do not plow before irrigating. The point is to get

as much water into the ground and as much grass growth on top as you can before the spring plowing. Never mind about the swelling of the buds. The trees will not be affected injuriously by getting a good summer supply of water into the soil.

Meadow Moles or Meadow Mice.

To the Editor: In my alfalfa field I have what they call meadow moles. They are doing a lot of damage. I tried to drown them a while ago by irrigating the land, but as I did not have a very big head of water I could not go over it fast, and they moved from one cheek to the other. Although I drowned more than half of them, I would like to know through your paper if there is any other way to get rid of them. Is there any poison that will do the work?—R. C., Corcoran.

Are they meadow moles or meadow mice? In our boyhood we used to call them wrong. If they are really moles we cannot give you a poison. If they are mice, turn back a few weeks to a full discussion of the Nevada mouse plague, which gives full instructions of ways to handle them in alfalfa.

Cutworms and Young Trees.

To the Editor: What method should be used to protect young fruit trees from cutworms?—G. H., Oakley.

Hoe around the trees or vines and kill the fat, greasy grubs which you will find near the surface. Put out a poisoned bait which the worms like better than the foliage, viz.: Bran 10 lbs.; white arsenic, 1/2 lb.; molasses, 1/2 gal.; water, 2 gals. Mix the arsenic with the bran dry. Add the molasses to the water and mix into the bran, making a moist paste. Put a tablespoonful near the base of the tree or vine and lock up the chickens.

Spring Pruning.

To the Editor: I am busy pruning prune trees and the sap is running pretty hard. Will it do the trees any harm to continue the pruning? I would thank you to let me know as soon as possible, as I would not continue if it should hurt the trees.—W. T., Santa Rosa.

Go ahead: it will not hurt the trees, even if you prune while blossoming.

THE OLDEST BIG TREE.

[Written for the PACIFIC RURAL PRESS by Dr. WILLIS L. JEPSON.]

A comment by a reader of the RURAL PRESS regarding the article on the oldest trees recently published in this journal leads me to say that while estimates or guesses regarding the age of the Big Tree may be valuable or interesting, the writer is attempting to provide a new category to include only ages of individual trees as precisely as the ages can be determined. Estimates are often very useful, but it is now desired to distinguish between estimates given as such, and, on the other hand, exact and checked determinations of an individual tree.

My attention is called to an article in Harper's Magazine for July, 1912, by Professor Ellsworth Huntington, of the Department of Geography, Yale University. "I have counted," says Dr. Huntington, "the rings of forty [Sequoia gigantea] that were over two thousand years of age, of three that were over three thousand, and of one that was three thousand one hundred and fifty."

These figures sound merely like round numbers, but a reading of the article shows the contrary. Dr. Huntington's age studies were made as part of an investigation on ancient climate, and it was necessary that the age limits of the trees should be made with the greatest possible care and accuracy. The work was done in the summer of 1911, mainly in the Converse Basin. It may then be accepted that the oldest Sequoia gigantea whose age has been accurately determined with the minimum of error is 3150 years.

University of California.

Home Production of Bench-Grafted Vines.

[Written for the PACIFIC RURAL PRESS by
L. BONNET of the University of California.]

The phylloxera gradually but surely accomplishes the destruction of the non-resistant vineyards of the coast counties. There, old and young vineyards are infested with it, and it will require a short time for their destruction, especially if the soil gets as little water as it has during the past two years. The consequences are a rapid decrease of the vineyard area in these counties and a growing demand for grafted resistant vines. If nurserymen cannot supply the demand for vines, grape-growers may produce the vines they need for the reconstitution of their own vineyards. This home production of bench grafts presents some difficulties, but they can be solved with satisfaction, if the following points are observed:

Choice of Resistant Stock.—The choice of resistant stock best adapted to the soil is of the greatest importance. On it depends the success of the vineyard. Indeed, a stock well adapted to a soil will grow well and bear profitable crops for many years, while a stock unsuited to a soil will be the cause of great losses. This question of adaptation is of much greater importance than that of the affinity between scion and stock. Indeed, it has been proved that when the resistant roots are well adapted to the soil, almost all varieties of grapevines they support produce satisfactory crops. To be able to solve with success the problem of adaptation, and avoid the mistakes which were made in the early attempts to reconstitute vineyards with the wild vine of California, as a typical instance, two points must be known: first, the soil; second, the aptitudes of the various resistant stocks.

For the soil, the main factors to be considered are its physical constitution, its depth, its moisture and limestone contents. The chemical composition is a point of secondary importance as to the choice of the stock, but it is true that the richer the soil the larger the vines and the larger their crop. When these soil factors are known, as well as the aptitudes of the resistant stocks, it is fairly easy to find out which stock seems to be best suited to the soil.

By aptitude of a vine is meant the conditions of the soil and climate which favor its growth to the highest degree.

Selection of Canes.—When the variety of stock adapted to the soil has been found, the next thing to do is to select the canes with which to graft. This selection must be made with both stock and scion.

With the stock, the selection bears especially on the size, the hardness of the wood, the size of the pith, and the reserves of food it contains. It is undesirable to graft very large cuttings, as they generally do not callus well, and often do not root well. Very small cuttings are difficult to graft and are generally poor in reserves, so that but a small percentage of them will grow if grafted. Cuttings more than $\frac{5}{8}$ of an inch in diameter and less than $\frac{3}{8}$ should not be grafted for the above reasons. The reserves contained in the cuttings, mostly in the form of starch, are important, as they regulate the production of callus and the growth of the vines in the nursery. These reserves of starch can be judged by a weak solution of iodine, which colors the starch blue. The deeper the blue obtained by putting some of the solution on slanting cuts of cuttings, the richer they are in starch.

The selection of the scion canes is also important. If the scions have been well selected, the vineyard will bear a maximum crop; if not, the crop will be far from what it might have been in the first case. This selection must be done in the vineyard when the vines show their fruit, at about the time of ripening. The vines having a satisfactory growth, a uniform crop of well-filled and regular bunches must be marked. If this selection of good vines can be done for a couple of years, so much the better. To be complete, the selection should also bear on the cane and portions of canes from these chosen vines. Suckers should not be used for scions, but only the canes

coming from spurs left at the last pruning. These canes possess buds of uneven value as to fruitfulness, and it is quite probable that those from the middle of canes are the best in this regard. Careful selection in regard to this last point is advisable if the best results are to be obtained.

Conservation of Stock and Scion Canes.—When these canes have been collected and put in small bundles, they must be stratified. The stratification in sand or loose soil is best done in a sheltered place. The bundles are laid flat and covered entirely with the above materials, fairly dry, so that they infiltrate between the bundles and the canes. Stratification in the open is dangerous, as the buds very often are injured by an excess of moisture. Leaving part of the canes above the ground is a very bad practice. During their stratification the canes undergo certain changes favorable to the formation of roots and callus.

Preparations for Grafting.—Before grafting, stock and scion must receive several treatments. Stocks have to be cut to the desired length of 12 to 14 inches, graded in different sizes, disbudded and soaked in water. Scions of one bud are used exclusively and must receive the same treatments as the stocks, except, of course, the bud is not cut off.

The grading of stocks and scions is an important operation. It insures smooth and good unions. Generally it is done by means of a slot, on which numbers indicate various sizes.

Disbudding of the stocks is done with a view to suppressing suckers, which often come from undisbudded stock. Suckers are a cause of expense and of danger to vines in the nursery and vineyard. To be able to handle stocks and scions without danger of drying, they must be soaked in water before grafting. Soaking also softens the tissues and renders the grafting easier. Disbudded stocks must be soaked from 12 to 24 hours, and scions, when cut to one bud, for a few hours.

Grafting Methods.—Two methods are generally used for bench grafting vines: (1) the wire graft, and (2) the modified whip-graft. To make the wire graft, stock and scion, of the same diameter, are cut at an angle of about 45° and kept in contact by means of a piece of No. 17 gauge galvanized-iron wire about two inches long. This piece of wire is first inserted into the scion pith one inch, and the remainder is then inserted into the stock pith. This method of grafting is particularly suited to beginners, owing to the ease with which it can be made without practice.

The modified whip-graft differs from the ordinary form in the length of the cut and the position of the tongue. The cut is made at an angle of about 40°, and its length is from 1.6 to 1.7 times the diameter of the cutting. In order that the stock and scion shall adhere firmly, the tongues must be made by cuts going diagonally across the grain. This tongue commences near the top of the cut and reaches the level of the base of the cut toward the middle of the cutting. By its thickness it insures a very firm contact of the cut tissues. These two methods of grafting are mostly urged when the grafts are to be callused in a hot room.

For sand callusing, the ordinary whip-graft is often used. The length of the cuts of stock and scion, being from 2.5 to 3 times their diameter, permits solid tying which is necessary in handling grafts in the sand. The tying must be done in such a way that moisture and air can have access to the cut surfaces.

Sand Callusing.—Sand beds were first used to callus bench-grafts. A sand callusing bed is generally placed against the south side of a wall, and it must be well protected against rain, so that it never gets too wet. The moisture content of the sand favorable to callus formation is from 5 to 7%. If too wet, the sand does not well fill the spaces between the bundles and those between the grafts, and a very irregular callus is formed. The bottom of the bed receives first two or three inches of sand; bundles of grafts are placed in a slanting position and two inches of sand put above

the level of scions. When the weather conditions are favorable, this method of callusing gives satisfactory results and can be used by beginners. At an average temperature of 66°C., it requires about 35 days to callus grafts. A higher temperature produces a quicker callus formation.

Hot-Room Callusing.—Many of the defects and difficulties of the sand callusing method are overcome by the hot-room callusing method. The conditions of temperature and moisture which are most important in callusing, and impossible to regulate with the former method, are easily controlled with the latter. This method requires a room preferably with a low ceiling, and in which the temperature can be kept uniform. The heating can be done by any system, from an ordinary stove up to a hot-water or steam heater. A fairly well equipped room should possess, at least, a maximum and a minimum thermometer. The temperature at which it should be kept is between 70 and 80°F. At these temperatures it will require between 20 and 15 days to have a good callus formed on stock and scion.

Callusing Media.—Experience has shown that a mixture of two-thirds moss and one-third charcoal, and another mixture of two-thirds sawdust and one-third charcoal, give satisfactory results. The first of these mixtures is used as a bottom and lateral covering, the other as a filling and a top covering. The charcoal must be sifted and the biggest particles must not be larger than peas. These materials are mixed beforehand to be ready when needed. The moss is first soaked, drained and spread on a clean floor. Charcoal is then added and mixed with it. If the mixture appears too dry, water is added by sprinkling. For the sawdust-charcoal mixture, it is better to mix the dry components and add water afterward.

Callusing Boxes.—Boxes are necessary in hot-room callusing. Any boxes can be used for this purpose as long as their height is from six to seven inches more than the length of the grafts. Their bottoms must allow the drainage of excessive water.

A box is filled by placing it horizontally on one of its sides, or in an oblique direction. Its sides and bottom are gradually covered with a two-inch layer of moss-charcoal mixture as grafts are laid flat. Care must be taken to have the scions at the same level and the spaces between grafts well filled with the sawdust-charcoal mixture. When the box is filled, it is set upright and a two-inch layer of the above mixture is placed on the scions. This side remains always opened. After thoroughly sprinkling the box and draining the box is ready to be placed in the hot-room.

For further details on these points and for further operations, the reader is referred to Bulletin No. 180, and Circular No. 76, of this Station.

Berkeley, February, 1913.

CITRUS, BLACK SCALE, OLIVES, FIGS.

Citrus groves, the black scale, olive and fig trees all have a rather mixed relationship which is worth while considering at this time when planting is being done or at least arranged for. The black scale is the most generally distributed of the scales that do serious injury to citrus trees and that call for a big expense in fumigation. It can fairly be said that no part of the State where citrus trees are grown can be kept free from this scale, though they may from other scales, provided the climatic conditions are satisfactory to the insect.

It was once thought that the black scale could not exist in some citrus districts where it is now quite a pest, and there is always a chance that through acclimatization and the fact that increasing irrigation makes for increased moisture in the air the black scale will ultimately thrive in the vicinity of the citrus groves in the foothills of the interior valley. Therefore, in planting border trees, it would appear wise to choose varieties on which the scale does not exist. Olives, which are the most common border trees in some sections, are about the worst choice that could be made as far as the scale is concerned, as they are about the best host plant for the black scale that there is and cannot be fumigated successfully when the citrus trees themselves are. Thus if the scale ever gets acclimated to the citrus districts where olives are planted for borders, as it has in some

citrus districts once thought safe, olives may do more harm than good. Peppers likewise are a very poor border tree.

The figs come in just at the other side of the proposition. They not only are no home for the black scale, but may prove a method of partial control, if experience in Palestine, with a climate very similar to that of California, counts for anything.

There, in order to keep the black scale subdued in olive groves, the Arabs for centuries have been planting fig trees here and there, especially those that hold on a crop through the winter. While the Arabs do not know why this does good, it seems that the scutalists, which does great execution against the scale, lives over the winter in the figs. One reason why the scutalists is not

as effective as it might be is that it often dies off, and if the figs for any reason could keep it from dying off, so much the better.

The wild or capri fig which holds figs on through the winter has also a very good reason for being planted as a border to orange groves, perhaps alternating with Smyrna or other edible figs. There always will be a good market in spring for these capri figs to apply to Smyrna fig trees, and in cold winters the thermal belts where orange groves are located would be fine for the capri figs, which might lose all of their overwintering crop in the lower lands near the center of the valley. Therefore, as a hint, it might be wise to substitute figs, especially capri figs, for olives as borders for citrus groves in order to help against the black scale rather than to work with it.

Alexander McAdie on the Freeze.

If there is anyone in California who knows about minimum temperatures and that sort of thing it is Professor Alexander McAdie, head of the Weather Bureau in this State, both through long and careful observation, close study and experimentation, and the best kind of facilities for obtaining accurate and complete data on weather conditions. The following is summarized from Prof. McAdie's official report on the weather for January, 1913, and from a special paper on frost studies based on said weather.

January, 1913, was the coldest month since 1898 and in some places lower temperatures were recorded than at any time since records have been kept. During a period of cold weather covering the last week in December, 1912, and the first week in January, 1913, temperature records were broken at a number of places in the State. In the northern portion of the State the temperatures did not fall as low as in the southern portion. In a general way, it may be stated that not since January, 1888, has there been a cold period so severe throughout the State as a whole, while in the southern counties the temperature was lower than has been known for a period of 60 years.

January, 1913, was in marked contrast to January, 1912, which was a warm, dry month. The month began with a pressure distribution favorable for north winds and comparatively low temperatures. Heavy frosts occurred January 4, 5, 6, 7, and 8, for which ample warnings were given. A depression of unusual depth over the Valley of the Colorado on Saturday, January 4, and Sunday, 5, caused high north-northwest winds. Typical frost conditions occurred on 6th, 7th, and 8th. The most severe weather known for many years was reported and great injury was done to oranges, lemons, nursery stock and ornamental trees.

The damage cannot be estimated, as it was far-reaching. In connection with the citrus industry, conservative estimate is \$15,000,000. Fortunately, the killing frosts were followed by cloudy, rainy weather, with no high temperatures. The weather continued unsettled for about a fortnight. The mean temperature for the State was 4° below the normal. With one exception, the mean temperature was the lowest since records have been kept.

The snowfall was above normal, and at the close of the month the depth and extent of the snow cover was much greater than at the close of January, 1912. The run-off was light, and, while there was not excess of water, there have been no complaints of scarcity. The precipitation was nearly normal. There was a moderate snowfall in the mountains, and at the close of the month more snow remained on the ground than at the same date last year, and about as much as in 1908. There was less snow than in 1909 and 1911.

Frost Studies.—For many years the Weather Bureau has advised citrus fruit-growers of California that widespread injury might result in unprotected orchards when conditions out of the usual occurred, and that preparation should be made even in the most favored localities for temperatures as low as 24°. It was pointed out that there had been many dates in the past 35 years when weather conditions were so severe as to cause injury to citrus fruits.

It is somewhat difficult to determine what con-

stitutes a dangerous temperature in connection with citrus fruits, inasmuch as most temperature records have been made in shelters and do not fairly represent the temperature to which fruit is exposed. At San Diego and Los Angeles the recorded values are from 5° to 10° above those made in the orange groves a few miles distant. There appears to be an increase in this difference with distance from the coast.

Again, temperature varies with height above the ground, and inversions are frequently found during winter mornings. An instrument placed near the top of a tree will generally give a temperature much higher than one placed near the ground. Furthermore, the freezing point most commonly used is not necessarily the freezing point for water in the plant. Finally, injury is frequently determined more by the rate of warming up after the blossom or fruit has been subjected to a freezing temperature than to the fall in temperature.

It is generally conceded that the money loss caused by the frosts at the close of 1911 amounted to \$5,000,000. The loss during December, 1912, and the first week in January, 1913, may amount to \$10,000,000.

In both of these frost periods ample warning of the fall in temperature was given, and in some localities intelligent and well-directed effort was made to prevent the lowering of temperature. This was particularly the case at Pomona, where the orchardists are organized, under the lead of J. E. Adamson, into a protective association. (The work of this association has been described by Mr. Adamson in these columns, and a further report on the work against the freeze will follow later, so this matter will be omitted at present.)

Unusual Preliminaries.—The frost periods under discussion differ from the frost of December 25, 1911, in that the strong winds preceding the frost came apparently from the north-northwest, rather than, as usually happens, from the north-northeast. It would appear that instead of the usual draught through the Cajon pass (elevation 3823 feet) the winds came over the Sierra Madre; that is, over a range with elevations exceeding 6000 feet. Such air descending would be somewhat drier than air passing through the pass.

While accurate records of air motion are not available, it may be noted that there were some unusual conditions. For example, on January 3 it was a matter of general comment in the valley that the "Norther" began in the west, the wind blowing from the west and south, veering to the north after two or three hours. It was also noted that the wind began at Wineville before it began at Riverside, and blew hard for an hour. This was followed by a calm at Wineville, while high winds prevailed in other sections.

It has been found that heavy frosts occur in southern California after a period of boisterous north winds. In the present frost period, as well as in that of December 25, 1911, the north wind was excessive. The frosts are undoubtedly traceable to a displacement of the air in the valley, ordinarily warm, by air that is not so warm although not cold. The descending mountain air is, however, remarkably dry, and while dust laden, has little water vapor. When the wind lulls, which is apt to occur after sunset, the soil which in many places consists of river wash, coarse sand, gravel or sandy loam, loses heat rapidly by free radiation. During the stillness of the morning

hours and before the return flow of air from the sea with its moisture can be effective, there has been a rapid fall in temperature. Under such condition it is not unusual to have a fall in temperature from 50° at 6 p.m. to 28° by 6 a.m. Temperatures near the ground will be 4 or 5° lower.

Minimum Temperatures.—Some minimum temperatures in different places for the freezes of December, 1912, and January, 1913, are as follows: Azusa, 20 degrees; Beaumont, 16; Chino, 16; Claremont, 19; Colton, 19; Duarte, 27; Escondido, 13; El Cajon, 19; Los Angeles, 28; Monrovia, 18; Pasadena, 21; Pomona, 18; Orange, 28; Redlands, 18; Riverside, 21; San Bernardino, 18; San Diego, 25; and Pomona, 17 degrees.

The lowest temperatures occurred on the morning of January 7, although on the morning of the 6th and the morning of the 8th dangerously low temperatures were recorded.

Whole Atmosphere Cold.—Study of the weather maps from January 3 to January 12 will show that there was a progressive increase in the severity of the weather from Friday afternoon until the following Wednesday. Study of individual thermograph records will show that abnormal conditions of temperature began Friday night. On Saturday, January 4, brisk winds began shortly after noon and continued until 3 a.m. January 6. Attention is directed to the marked effect of this brisk wind upon the temperature. During the midday hours on the 4th, 5th, and 6th the temperature did not rise much above 50° and in some places did not reach 50°—or 30° lower than the normal midday temperature. This strong wind would undoubtedly have had a beneficial effect and prevented rapid cooling had the air been stratified and the usual distribution of heat existed. On the contrary, the whole mass of air to an elevation of possibly several thousand feet was at a low temperature.

There was also a peculiar fluctuation in the moisture content of the lower air. The wind produced a marked drying effect and for a period of nearly 96 hours the curve showing percentage of saturation is quite unlike the curve usually given during frosts in these localities. The usual conditions, however, are still, quiet nights, when the minimum is determined primarily by free radiation. As a rule, there is little air motion in these localities at times of frost, and as any loss of heat by convection is small, it would appear that during the interval referred to above, the air motion was active, and large volumes of comparatively cold air—that is, cold as the radiating surface, if not colder—passed over and through the orchards.

Periods of Cold; No Heat Between.—In general, the citrus fruit was subjected to temperatures below freezing for four successive periods, averaging four hours for the first, four hours for the second, thirteen hours for the third, and nine hours for the fourth. In all, it may be said that in a total period of 72 hours, during which under normal conditions the plants would have received a supply of heat approximately represented by 1500 hour-degrees, starting from a temperature of 40°F., they only received 220 hour-degrees. There were 170 hour-degrees below freezing and of these 50 were below 25°F. In a general way, there were 30 hours when the temperature was below freezing; 12 hours when it fell as low as 25°; and 2 hours when the temperature did not exceed 20°F.

HOW ABOUT ZINC ARSENITE?

We don't spray potatoes here in California to kill the potato beetle, but results of experimentation in Colorado on spraying materials might be suggestive here on things that we do spray. It was found that the zinc arsenite was just as effective as paris green on potatoes when used at the same strength. For the cabbage butterfly and the diamond-back moth, it was as effective as arsenate of lead of double the strength, while paris green at even one-third the dilution injured the cabbages. Tests made at the Montana Station are said to have shown that neutral arsenite of zinc is less injurious to the bark of the apple tree than any other arsenical compound used. Spraying for the codling moth is due to start soon here, and a little experimentation might not be a bad proposition.

Irrigation From Wells in Monterey County.

[Written for the PACIFIC RURAL PRESS by
PAUL PARKER.]

For years the residents of the southern portion of Monterey county have watched and prayed for more water. They wanted an insurance against drought, something to supplant the rains, which, for the most part, are adequate for cereals, yet are valueless for the more profitable crops of which the land is capable. Some, too, have wanted to escape the annual winter drudgery of watching the barometer, for they would like to be independent of this instrument of torture and turn its face to the wall forever and all time. To accomplish this, to make such a state of affairs possible, some have tried to arouse an interest in the innumerable dam sites that lie in the mountains on both sides of the Salinas river, but to no avail. Yet, all this time there has been at their feet, varying somewhat in depth, a never failing supply of water. It extends for miles and miles up and down the valley. Now with an electric power line traversing this section, water is merely a question of wells, motors and pumps.

That there was water bearing strata underlying this section, has been known since the time of the earliest settlers, but no one wanted to experiment as to the amount. Here and there were household wells, and an occasional battery of windmills or a gasoline engine flooding a small patch of alfalfa, but not as it should have been and as the country warranted. However, the David Jacks Corporation, owners of extensive holdings in Monterey county, saw the possibilities of well irrigation and put in a pumping plant run by gasoline. It was a success from the start, and land that was formerly brown and desolate by June, bloomed as a rose in the driest summer months. So they immediately branched out in their operations and spent several hundred thousand dollars making other land available for irrigation.

The development work is being centered, at present, on the Chualar ranch and on the Los Coehes near Soledad. Of the Chualar ranch, about 1,300 acres will soon be under irrigation from wells and of the Los Coehes, there will eventually be 2,000 acres, possibly more, as much of this large ranch is available.

Subdivided for Dairying.—These two ranches are being divided into small farming units of 150 acres, laid out principally for dairying. The divisions were made this size as being the most suitable for the renters to handle to the best advantage. It has been found, as a general rule, renters overestimate their capabilities and endeavor to farm too large a tract, with results disastrous both to lessee and lessor. This idea of extensive farming as opposed to intensive, is especially prevalent in this section where there are so many large land grants.

On each of these farming units there is a dwelling, milk houses, cow and hay barns, pigpens some distance from the other buildings and motor and pumping plant. Installing individual pumps and independent irrigation systems in this way has added materially to the cost of getting water on the ranches, but it has this salient advantage; the farms are so much easier handled; it makes each renter independent of his next door neighbor; there is no mad scramble for water, all at the same time and if the alfalfa or whatever is being grown, is not irrigated opportunely, there is no one to blame but the renter himself. For, whenever he wants water all he has to do is turn on the switch and connect up his surface pipe.

Each renter is charged a certain rate per horse power of his motor, based on a continuous run of six months. He pays this whether he pumps a drop. There are no clauses in the lease as to the number of irrigations, it is for each individual to decide for his needs; but having to pay in this manner forces the farmer to irrigate his alfalfa when it is necessary. There is one provision, however, in every lease which insures longevity to the alfalfa. It is, that no field shall ever be stocked; all feed has to be cut, and fed in that manner. This obviates any careless milker turn-

ing the cows on alfalfa when the ground is soft. However, permission will be granted in certain cases for the men to run their cows on the alfalfa, such as after the last cutting and before there has been any rain.

System of Wells.—Having a well on each 150 acres necessitates one being bored about every third of a mile. The capacity that is aimed at is 600 gallons per minute, although some exceed this greatly, one tested over 2,200 gallons per minute. This testing out of wells is an important factor in the Jack's system of well irrigation. It is expensive, but it is a profitable investment in the long run. Immediately after a well is sunk, a testing crew with a caterpillar engine find its capacity. They test continuously for eight days to see what the well will do, and how far the water level will recede, a most important element in cheap well irrigation. This testing crew find that often it takes several days to prove a well; sand or rocks will impede the water, and wells that the first day or so will only be capable of 200 or 300 gallons a minute, will develop a capacity for five or six times this amount before the test is over. Although the standard is a 600 gallon well, nevertheless, they make tests for as high as 1,500 gallons; not that they want such an amount for present needs, but for the future, should circumstances arise whereby they would want to enlarge the plant. Another advantage of these tests, they know exactly what size motor and pump to install. Where one well does not test the prescribed amount; that is, a well may give 600 gallons but the water level is reduced too much, they figure that it is cheaper to bore another well so as to raise the water level with six or eight feet of the pump at all times, than pull up the water from a twenty-five foot depth. Often, when they dig an additional well to maintain a high water level, although but fifty feet from the first, yet its capacity will be two or three times greater. When it is necessary to dig two wells, they are connected to the pump by tunnels; at first, however, open shafts were used, but it was so expensive, that tunneling was tried and was easily done even in the soft sands. The wells average in depth from 150 to 300 feet.

The pumps are sunk in the shaft over a well about 20 feet or about five or six feet from the surface water. The horse power used ranges from seven and one-half to ten, according to the capacity of the well. These people have found from experience, that it pays them to add a \$100 or so to the cost of a pump and get the highest class article, the more efficient it is, the cheaper it is in the end. They have been able to compare the running expenses of two grades of pumps, and the higher priced paid for itself in the six months run.

Continual Operation.—When a pump once starts, it never stops for six months; it was found by having a continuous run in this manner that a better rate could be obtained from the power company furnishing the "juice." If at any time it is desired to stop irrigating, the water can be turned into a reservoir and held until ready to commence again. The reservoir, too, saves disagreeable night work and insures more efficient handling of the water; for parts of cheeks are often overlooked at night, water is wasted and gophers and mice that are forced to the surface are allowed to escape. When the men stop work in the evening the water is turned into the reservoir, and in the morning, if it is desired, several cheeks can be watered at the same time, as the main pipe is a 45-inch affair. These reservoirs are made of earth thrown up from the surrounding land and to prevent grass and gophers getting into them, crude oil is well mixed through the embankment.

Irrigating Pipes.—On account of the necessity of saving the water, all of it is carried in concrete pipes under ground, and to relieve the air pressure in them, stand pipes are put at intervals. The branch and lateral pipes are 16 and 12 inch, and are made on the ranch. At first, trouble was experienced with them because the laborers would

not take the pains necessary to cure them properly, after they came out of the molds. It was found, that unless the pipes were kept black, or saturated with water for seven days, they are useless. The laying of the pipe is all done by contract and the 16-inch pipe laid in the ground costs about 55 cents a foot and the 12-inch about 35 cents.

These pipes are laid down the center of a field and are so arranged that if at any time it is desired, the surface pipe, which is used to water the cheeks can be done away with, and under ground pipes put in each cheek and the irrigating done entirely from the hidden pipe. By the arrangement now, every 120 feet along the pipe are connecting valves. To these are attached a portable hydrant and the water scattered over a cheek by means of a surface pipe. By having the connecting valves at this distance, two cheeks can be watered from each hydrant, as the cheeks or laterals are 60 feet wide and 1,000 feet long. To reach the end of these cheeks requires a surface pipe 700 feet long, then as the cheek fills up, link after link of the surface pipe is removed. If a foot of water is required the water is turned on slowly so that it will be absorbed into the ground and not stand over the alfalfa; but when only six inches is to be put on, the water is turned on so as to run faster, and cover the cheek uniformly.

Having these long laterals was found by the Jack's Corporation to be better suited for their needs than any other system. They tried fields without cheeks of any sort, but it was discovered that the men irrigating needed some guide to go by. Otherwise there was danger of a field not being irrigated uniformly. So at the present time, in some of these large fields, small cheeks are being put up, for no other purpose but to guide the irrigators. These cheeks or guides are hardly perceptible, so that mice and gophers have no secure place to hide. So small are they, that often in plowing and seeding they are obliterated and a V-shaped drag has to be drawn over them to give them body.

Planting.—There is no set time for planting alfalfa on these farms, but whenever a field is ready, the seed is put in. Consequently, one sees fields that have been planted in every month from February to November, and fine stands they are. The men give more attention, however, to seed planted in the hottest summer months, as there is danger of sealding. The land is plowed about seven inches, in preparing the seed bed, after which it is harrowed and cross harrowed until the ground is thoroughly pulverized. Of seed, from 18 to 20 pounds is used to an acre.

But alfalfa is not the only thing that is to be raised on these Jack's properties. It will not be long before this one time grain land will be raising an entirely new line of crops. Experiments have shown that onions, asparagus, beans, buckwheat and berries of all kinds make a wonderful growth on this land. Consequently, instead of southern Monterey county being a one-crop country, it will have a multiplicity of crops which will make it all together a new section. Today, there are dozens of timorous farmers watching with interest the operations of the Jack's Corporation, trying to get enough courage to go and do likewise, but it will not be long before they drop into line and eventually there will be a string of irrigation wells over the entire section.

OKLAHOMA FOR STATE-BUILT SILOS.

B. O. Williams, of Kansas, writes to the Nebraska Farm about what Oklahoma is thinking of doing to get cheap money for farm improvements. He says: If the legislature of Oklahoma sees fit, the "new state" will likely be the first in the country to put in operation a system of agricultural credit. A bill, with strong backing will be introduced authorizing the issue of two million dollars in bonds to erect silos on Oklahoma farms. Money from this fund is to be advanced to farmers and stockmen to build silos, and later to be repaid to the state. It has been estimated that with such a fund available, 5,000 silos could be built in time for filling next fall.

The proposed law is receiving strong support. One of its backers, in telling of the possibilities of such a move, has this to say:

"Silos will make Oklahoma rich quicker than any other one thing. With silos we can make an

enormous increase in our output of livestock, and livestock makes the most profitable kind of farming. After installing 5,000 silos, in less than twelve months from the time the first silo was installed by aid of public funds, the owners will begin to pay the state the small sum lent. The money can then be lent to other farmers to build silos.

"The fund can be made nearly a perpetual one, although the profits which will be derived from

the methods used will be such that the fund will not need to be a perpetual one. The bond issue can run for twenty years and then be extinguished by the money repaid by the farmers. During the lifetime of the bond issue, more than 100,000 silos can be established on the farms of Oklahoma. Long before that number is built, our farm products will reach an annual value of more than 500 million dollars. Oklahoma will be the richest state in the Union. The silo will do it."

How to Raise Good Stallions.

[Written for the PACIFIC RURAL PRESS by
HENRY WHEATLEY.]

We frequently hear the question asked. Why can we not raise our own draft stallions instead of importing them? We can, if we are prepared to put money and brains into the business, as we have done in developing the trotter, beef and dairy cattle, and other kinds of live stock; but if we are to make a success, it is just as essential that we have good mares as it is that we have good stallions.

There is today an active demand for home-bred, registered stallions at remunerative prices,

Good Future.—In California the production of high-class drafters has been very much neglected, and as a result many of our largest buyers have been compelled to go East for horses and to pay prices which would be very remunerative to California farmers.

We must not be misled by the advertisements of power-truck men, into the belief that the demand for draft horses is at an end. While undoubtedly the power truck has its uses, it cannot displace the draft horse. The tendency of the times is without doubt toward deeper and more thorough cultivation of the soil, which means



One Importation of Shire Mares From England by Henry Wheatley of Napa.

and the demand is sure to grow, for education is rapidly doing away with the scrub, and the cost of importation gives us a distinct advantage over imported stock.

The real question is how to raise them. If we hope to be successful, it is absolutely necessary to start with foundation stock of the highest class; if our capital is limited, it is better to buy one pair of really good mares than a dozen inferior ones. The writer has seen a great many mares imported into the States, and is of the opinion that seventy-five per cent of them are quite unfit for raising stallions.

In Europe good mares are worth almost as much as good stallions, and if we buy imported mares, at little more than gelding prices, we may rest assured that we have bought something for which the breeder has no use.

Essentials.—In selecting either mare or stallion there are four qualifications to look for: size, conformation, activity, and soundness. All are important, but without soundness the others are practically worthless; therefore, in buying, we must be very sure that the animal is sound and, if possible, that the sire and dam are also sound.

We must not be satisfied with a State license, but examine the bone thoroughly, or if we are not competent to do so, find some one who is; but be very sure that our breeding stock is sound.

Then we must see to it that we get size combined with activity. By size I do not mean so many pounds of fat, but weight in bone and muscle; it is quite possible to take a 1500-pound horse and put enough fat on him to make him weigh a ton, but he is still a 1500-pound horse.

As for activity, a draft horse should use both his knees and hocks, picking his feet well off the ground and going straight and true with his hocks well together. To command the highest price, good conformation from the standpoint of both beauty and utility is necessary, and to become familiar with the best types we should miss no opportunity to visit the fairs and breeding farms.

The foregoing remarks apply to the raising of draft horses for city use, just as much as to raising pure-bred stock.

heavier horses; and the cutting up of the large ranches means more horses; in fact, everything points to an excellent demand for heavy horses for years to come. There is both pleasure and profit to be derived from raising draft horses, if it is done intelligently.

RIVERSIDE SADIE BREAKS RECORDS.

California is sending other world's records flying. Riverside Sadie de Kol Burke has finished her second official yearly test for the Holstein-Friesian Association and comes off with the world's milk records by a large margin for seven, thirty, sixty, and one hundred days, and for six months and two years. She is surely some cow and a big credit to her owners, A. W. Morris & Sons, Woodland, and to California.

This yearly test was completed the 17th of this month. The records at the dairy, made under the rules of the Holstein-Friesian Association, with representatives of the Agricultural Experiment Station in charge of the testing, show her production to be 28,821.2 lbs. of milk and 1084.78 lbs. of butter. In the two years' tests she has produced 54,803 lbs. of milk, 1651.96 lbs. butter-fat, and 2064.95 lbs. butter (80% fat).

This wonderful record is rendered all the more noteworthy by the fact that Aralia de Kol, another cow in the same herd, also is a world beater, as all our readers ought to know by this time. Last year she finished up her first yearly test at an age when most dairy cows would have outlived their usefulness and gone to the block, giving 28,065.9 lbs. of milk, a world's record at that time, by a big margin for cows of any age. And now, less than a year later, a cow in the same herd tops that record by more than 750 pounds.

Riverside Sadie likewise is the second California cow to break into the aristocratic company of the cows producing the fat to make 1000 lbs. of butter and better, following Aralia in this particular. And it is worth while noting that this record was made after a year's test, which some

people claim is so trying on a cow that she has difficulty coming up to form again. That record doesn't look as if Sadie felt worn after her first year's official work. And it should also be considered that Riverside Sadie walked off with the Grand Championship at the State Fair this year also, showing that she has the looks as well as the ability.

It is worth while saying a little more about Aralia de Kol at this time, too. Readers will remember that a week or so ago we called their attention to the fact that as a producer she held the old-age record, in spite of claims that a Kansas cow was champion. The RURAL PRESS was the only agricultural paper that disputed the Kansas claims, too, for that matter.

Now A. W. Morris & Sons write: "We appreciate the kind mention which you made in behalf of Aralia de Kol in last week's paper. In view of what this old cow is doing this year again, we believe that she is capable of holding her ground against all cows of her age. She was born in the year 1900 and since calving this time has made her largest seven and thirty-day milk and butter record."

"On official test she has produced as follows: Seven-days milk, 742.4 lbs.; butter, 30.13 lbs. Thirty-days milk, 3069.1 lbs.; butter, 122.30 lbs. She has averaged over 100 lbs. of milk a day for the past two months. She also dropped a beautiful bull calf by King Sergis Pontiac Emperor, which we will retain as a herd sire. This gives us sons of Sadie and Aralia, both of which we will use in our herd."

What Californians can't do with good stock with our California feeds and climate isn't worth doing. There is something to blow about, all right, but we are only just getting started. A little more of that kind of stuff, and every breeder who takes stock to the 1915 Exposition will stay here.

METHOD OF DRAINING A WET SPOT.

A week or so ago an answer to an inquiry as to the best method of draining a wet spot in an apricot orchard appeared. A subscriber, Jacob Duisenberg, of San Francisco, called at the office to tell a method that he has used in similar cases in Germany with great success. This consists in boring a well through the center of the wet ground down to sand or gravel, which will permit a free passage of water. The drainage of water from the wet ground can then run off into this, provided there is sufficient movement of the water below.

Drains are run from various parts of the wet land to the well, which may be a pipe six or eight inches in diameter. These drains can be made by digging trenches about 2½ feet and filling the lower part with round stones, not jagged ones. The trenches might be about 30 feet apart. The main question is whether the cost of reaching gravel is cheaper than the cost of putting in tile for as long a distance as is necessary to reach a good outlet for the water. Mr. Duisenberg states that by using this method a number of places formerly waterlogged were made fully as dry as there could be a demand for. D. J. W.

FERTILIZER AND FROST.

A very interesting connection is shown by a series of experiments in grape-growing in France of the relation that fertilizing bears to frost injury. It was found that the application of potash fertilizers was a partial protection against frost injury.

There were two varieties of grapes grown in a series of fertilizer plats. Each variety was grown with and without potash salts, and those which had received potash were less injured by severe frosts in 1909 and 1912 than the same varieties which had not received this fertilizer. Analyses were made of shoots taken from the different plats, which showed a lower water content and a somewhat higher dry matter and ash content where potash had been given to the plants.

The difference in resistance is believed to be due to a difference in concentration of the cell sap within the buds. Similar results were noted on two plats of grape vines, one of which had received nitrate of soda and the other was without fertilizer.

Some Thoughts on the Agriculturists Place in Politics.

[Written for the PACIFIC RURAL PRESS by
C. A. BODWELL, JR.]

Recently there was published in a San Francisco daily paper what purported to be a letter from a well-known Sacramento fruit grower to Governor Johnson. Doubtless it was genuine. It dealt principally with the great difference in price of farm products to the consumer over what the producer received, and also referred to the infamous practice of real estate sharks who are selling to strangers any kind of land anywhere, as adapted to anything grown in the State. There was also mention made of the weakness of the agriculturists influence as an aid in the correction of these evils, in which he more than any other class is most vitally interested. The needs of the regulation by statute of the man's action whose duty it is to pass produce from the producer to the consumer, as well as the need of a law to particularly apply to the man whose duty it is to consummate the sale of real property, was dwelled upon to some length.

Without doubt it is very well known, even outside of the agricultural classes, that both of these subjects have arrived to the point where they may justly be called abuses. It is a matter of importance at this time in the State's development that they be regulated by legislation, or legislation should provide means, even if indirectly, whereby the desired results may be accomplished.

IMMORAL TRAFFIC.—People who go about the State to any extent, doubtless have occasionally observed some of the operations of a certain class of real estate men, whereby disposition of land has been made at high figures, which was either poor land or land absolutely unadapted to a purpose to which a buyer unacquainted with California conditions, supposed he was getting.

The writer has noted instances of families having been placed on land by conscienceless real estate men, which they were compelled even to abandon, together with whatever money had been invested. These abandonments were for reasons that combinations were such as to climate, water, soil, transportation or other conditions, that with their lack of knowledge of Pacific Coast farming methods, it was utterly impossible for them to make a living. Unsuspecting strangers have even been placed on alkaline lands, which without drainage facilities and special treatment were absolutely worthless for small farming. They would fail and still unbelieving try again and fail, finally to abandon their work and investment with nothing left but bare hands, and probably a family of children to support.

If hanging is just retribution for the violent taking of human life, would it not also be just for such fellows as these, who are but the means to the same end in a slow and more roundabout way? They are the direct cause of blasted hope and years of work and life lost. Through their instrumentality parents have been placed in situations where they were unable to provide even sufficient clothing and proper food for those dependent upon them.

These are things of which we seldom speak. They are not in print for we are ashamed of them. They, happily, are not general. They do not occur often, nevertheless they do occasionally occur. When they do it is with ten times more damage to the reputation of the fertility of the soils of the State and to decent real estate operators, than if such occasional conditions were duly acknowledged and

legal measures provided which would prevent their happening at all.

The soils of the State are all of them good for something. Even the most of the small percentage of rocky, alkaline or hard-pan areas are possible of profitable use, if properly and intelligently handled. On the other hand, the very best of soils are not universally and invariably adapted to the same product or all products in each and every location. Varying elevations, differing climates and different conditions are the qualifying mediums making success in one instance a failure in another.

RELATIONS OF CLASSES.—The farmer fills his necessary place in his duty to society by the tillage of land. The banker in part fills his place, if filling it properly, by intelligently loaning certain amounts of the deposits of his bank for agricultural development. The real estate man is apparently a necessary medium between the seller and buyer of land. Thus, a list of occupations in the make-up of society might be continued indefinitely. Each has his little part to play, but unfortunately some of us can not or will not play our parts fairly, therefore laws have to be made regulating actions and providing penalties for those playing unfairly. New conditions are constantly creating need for new laws. California is in a state of transition from the old to the new condition of the "little farm well tilled." Mingled with the new conditions are constantly occurring matters relating to irrigation, drainage, reclamation, to soil adaptability and many other things with which the stranger is practically unacquainted. Being unacquainted he is the easy victim of plausible misrepresentation.

In view of the fact that he is coming among us to remain, for his good, which will of course also be for the general good of the community at large, it seems necessary that he be properly protected and instructed in these matters. To fully consummate such protection, it would seem necessary that laws be enacted regulating the subdivision and sale of land, in the compliance of which there would automatically be made known the adaptability of such lands to their proper agricultural product.

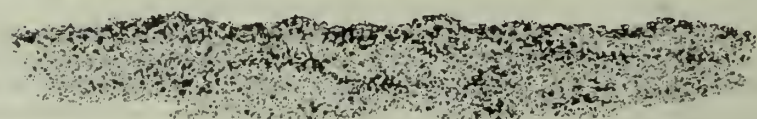
THE STATE SHOULD INTERVENE.—Thus; suppose that there was created a State Commission or Board of Experts, to whom land subdivisions would have to be submitted for examination and passed upon before they could legally be sold. Such a board might consist of three members, all agriculturists, but each a specialist in his particular line. For instance such a commission might be made up of an agricultural engineer, a soil chemist and a horticulturist. There would, of necessity, be field men for the different lines of work. The three heads should be men of high standing and complete understanding of their subject, as applied to agriculture in California. While they also might be men who were actively connected with the Agricultural Department of the University, it would seem better not, for undoubtedly all of their time would be occupied with this work.

However, the Commission itself might be a part of that Department of the University. They should not be cheap men, neither should they be politically rewarded men. It would seem that a minimum of \$5000 yearly should be paid so that the monetary attraction would secure the best intellect available.

Whenever an owner or an agent for an owner proposed to offer a subdivision for



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sale, it should be necessary for him to petition the above board to do so. It should be the immediate duty of the Board to send field men to make an investigation in the way of soil sampling for the determination of plant foods, alkali, etc.; to look into the water possibilities for irrigation and whether such irrigation might be accomplished by pump, by private ditch, by district ditch or other means.

If it were leveed land they should report on the probable efficiency of levees as well as drainage, and at all events to note the crops commercially adapted to the land and location.

The report should be made out and signed by the Commissioners and might be attached to the advertising matter of the tract. In fact it might be well if it were compulsory that it be so attached. The report should also name the bona fide owners and exhibit any contract between such owners and the seller or agent. Also it should properly be the duty of the Board to pass upon any advertising matter and illustrations, with the end in view of curtailing anything in the nature of the land agent's usual extravagant statements. A small charge might be made against the land to cover the expense of field and laboratory work or a part of same. Thus, a part of the expense of the Commission would fall on the State, say the office maintenance, etc., and a part on the individual owner or promoter of the tract, say field and laboratory work, etc.

How It Would Work.—This procedure as roughly outlined would seem to produce the following results:

1st. It would prevent misrepresentation by so-called land agents.

2d. All real estate agents would be placed on an equality, protecting the selling agent who is now trying to do a straight business from the unfair competition of the one who is not.

3d. The stranger seeking a home would have reliable advance information as to what he was seeking.

4th. There would be outlined some certain crops for which the land might be especially adapted, or at least some of the things for which it is not adapted would become known.

5th. If all those strangers who ordinarily would be tricked when buying within the State, were by means of this procedure to become of the large satisfied class, where their efforts would result in profitable production, the increase of products sold will doubtless many times pay the expense of such a Commission.

6th. There would seem to be every probability that the general tone of the land selling business would be greatly raised.

MARKETING.—The other subject particularly noted in the gentleman's letter, of the desirability of the provision of some means of getting the farmers' produce into the mouth of the consumer without the great discrepancy in price so evident, is an old and much discussed matter. Both the farmer and consumer are sure that they have been for years systematically robbed by this rustling member of the business world, the commission man. He is called all kinds of harsh names for which if there is just reason, doubtless he is in danger, if it is possible to enforce the laws of the land, of being condemned to spend the term of his natural life in the deepest of dungeons. They are both surely after him with rather good prospects of ultimately compelling him to apply his aptitude of getting between the buyer and seller to force his price on both, to some other similar line of effort. It might be such as holding up belated pedestrians or the like.

There have probably been as many remedies proposed as would be discussed by a consultation of medicos over a rich man with a bad cold. A few of them have been tried. They have been in a measure in the nature of experiments. However, some of these experiments have succeeded in part while others have not succeeded at all. Out of all those tried and having resulted in a measure of success, there has remained something of good, but abundant room is still open for more of the same good along similar lines.

CO-OPERATIONS.—The greatest evident beneficial results seem to have been in the organization of the fruit growers co-operative associations throughout the State. They have not only regulated the supply to the different markets, but have created enormously increased markets with profitable returns to the producer as well as satisfactory prices to the consumer. They have prevented the glut in certain spots and the scarcity in others, with the consequent uncertainty and wide variation in price, which were always ruinous to successful marketing. They have demonstrated the success of co-operation and united action, which are the proposed remedies for poor prices in many other lines of farm produce.

FREE MARKETS.—Another experiment which, however, succeeded only partially and existed only for a short time, were, the free markets. At present they seem to be rather out of the popular fancy. Some years ago there was State provision made for such markets and two, rather inadequate in size, were established in San Francisco. From the start, the stalls were taken by bona fide producers of farm produce, who exhibited and sold the best of such goods. The market was temporarily a success. Hither came housewives from all parts of the city and for a few hours in the forenoon the dame from the Western Addition as well as she from the Apartment District or the Mission, together with those from the foreign quarters or the Barbary Coast elbowed each other while they bartered for and bought some of the best produce of the State, at a price of something like two-thirds of what they ordinarily paid. Also the farmer and seller received from fifty to one hundred per cent more than he usually realized. This was, of course, ruinous to the retailer's business who had long supplied at fancy prices, those who were now free market buyers. In turn it naturally reduced the amounts sold to the retailers by the commission men. In self protection they were thus compelled to enliven their protective association, or whatever it may have been called.

HOW UNDERMINED.—Then the farmers who were selling the best produce in the Free Market found that they could mysteriously sell on their farms at better prices than could be realized after shipping to and selling in the market. This was, of course, through the instrumentality of the commission men's organization.

Thus, uncontrolled, individual selfishness, the same old individual selfishness which has been evident alike in all classes, in all races and in all ages, was the main contributing cause for the gradual withdrawal from the Free Market of the sellers of the best produce. Those only were left who were offering the poorer stuff. Gradually this morning crowd of shoppers fell off in numbers, and it was only a matter of a few months until the doors and windows of the Free Market were nailed up.

Then these short-sighted sellers of the best produce were again forced back to the commission men, for a final accounting of the previous brief period of high prices. The organized commission men

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were more astute and stronger than the unorganized public. They were doubtless wise enough to say nothing, as nothing was heard that they ever did say. For them the silence of the empty market stalls was sufficient, and their visible demonstration to the public of the apparent futility of such undertakings.

HOW IT COULD HAVE BEEN PREVENTED.—It is quite probable that just these features of the matter were not generally known, at the time, among the farmers of the State, nor was it generally known to the consumers who bought there. Even if it had been known, there is great likelihood that any measures for its prevention would not have been immediately taken. However, if there had existed an organization controlling individual action, among the farmers throughout the State, through it the Free Market might have been kept supplied in the face of these tactics, as well as a plenty of good produce might also have been supplied to the commission men or their organization as long as they were willing to pay proper prices therefor. If by this means the market could have been kept in existence, it is doubtless a safe assumption that a number of the over-supply of commission men might have faded from their haunts in Washington street, instead of their having been the means of the failure of the Free Market.

WHY DO NOT FARMERS PROTECT THEMSELVES.—The immediately foregoing is explained to some length as illustrative in one instance of what pecuniary good may come to producers of farm produce who are organized, and in the other when unorganized how weak and impotent as a class they may be.

Quoting from the gentleman's letter referred to: "A farmer should be nothing but a ward of this government. Everybody is preying on him. You can never organize the farmers into a trust or society for self-protection. For thousands of years they have tried to organize and they have failed. They will not trust each other. They can not trust each other."

Doubtless there is something of truth in the above quotation. Experience shows that individuals in every walk of life are the prey of the organized many. If the farmer will persist, as an individual, in trying to secure just remuneration according to his effort, merely because he will not trust his neighbor or because he is, like others, individually selfish, before him, in this age of organization, he may contemplate a picture of a future with himself as the prey of those who have always been the parasites on their brethren. He may see himself the continual prey of the increasing non-producing class.

Unorganized he can not become the ward of the government even if he would, for the supposition can not exist that the interests who stand ready to exploit him as well as to exploit other producing classes, would voluntarily make him entirely such. Doubtless if he came to the extreme point where his very existence were threatened and the food output was in danger of being less than the requirements of the people, then a clamoring public by legal enactment, for its own self-protection, would be compelled to aid him back to the point where he could supply them. This assumption of coming to such a pass is, of course, not good; but the assumption that there is a tendency that way is entirely well taken if, as is apparent, there will continue to prevail the listlessness of the farmer and the present attitude toward him by the non-producing classes.

"LILIES OF THE FIELD. THEY TOIL NOT, NEITHER DO THEY SPIN."

HOW FARMERS CAN PRESERVE THEIR INDEPENDENCE.—The farmer must by his

own concerted efforts make himself a ward of government, if he is desirous of becoming just that carefully cared for individual. However, he does not want to be a ward of government, but he does want to be enough a part of the government, that laws and rights now denied him may be attained. To be such he must organize politically. He must be a united, feared power behind the maker of laws as well as behind the executive head of our governmental system. Organized and with the aid of other producers' organizations, he may be almost the government itself. Unorganized he may yet come on this new western coast, which promises all the enlightenment and liberty and equality of a new and true civilization, to be the victim of the same old conditions of neglect, or denial, or contempt of equal rights which have heretofore resulted in the tremendous internal disturbances of nations.

THE LEGISLATURE.—The Legislature is in session. From the interior and farming districts how many real farmers are sent as members of that body. As far as present information is obtainable there are none. Members from the large cities, Los Angeles and San Francisco, naturally can not be looked to as entirely in sympathy with legislation especially beneficial to the farmers, but the balance of the members from the interior are also of the same class. They are generally lawyers, professional politicians, tradesmen or the like. True, their interests in the prosperity of their localities does in a measure prompt their sympathy for any proposed legislation promising pecuniary advantage to their district. However, as they are generally residents of the small towns, their occupations and feelings of fellowship are for their nearest neighbors, the town class. The town classes are ordinarily more in sympathy with legislation affecting their immediate interests or pocketbooks. In other words, the legislation effecting law made property, which they more generally possess, and not the true and only indestructible property, the land itself.

Among important things, in addition to the two matters above referred to, as conducive to the well-being of the farmer, and in which he has an equal if not greater interest than all other classes, are: taxation as applied to land, the game laws, banking laws, insurance, foreign immigration, the public service corporations operating in the rural districts and the University, particularly the Agricultural Department thereof, as well as the other public educational institutions.

WHAT POLITICIANS DO.—Due to individual adherence to the two political parties, while being politically unorganized themselves, they have allowed men not on their side of these questions to become their leaders. Among all the hundreds of bills introduced, there are few apparently promising any great good to the farmer, or which would have any unqualified backing by the agricultural interests. There have been some endorsements by a few disconnected agricultural associations or societies, of some of the proposed bills, but any of the bills of ostensible benefit are of really small apparent benefit. Doubtless the inspiration of many of them is really based on the desire to make a gallery play for the farmers' vote in farmers' districts at the next election.

WHAT FARMERS MUST DO.—With increasing class organization all around them, farmers must themselves as a political class organize; must make their class interest felt as a unit in legislation; must themselves, through their organization become a part of the legislative bodies of the State.

If there existed a State Agricultural Political Union, composed of local or-

This Tree



is just as good a Fruit Tree as that one

BUT



it is being starved to death for want of nourishment. The soil around its roots is worn out—it needs a fertilizer.

We compound a special fertilizer for the orchard, the vineyard, the farm, which invigorates worn out soil and gives you

A bigger crop of better quality.

Write to-day for our FREE BOOKS of facts giving full information regarding fertilizing.

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Largest manufacturers of Fertilizers, Poultry Foods and Bone Charcoal on the Pacific Coast.

Bean Giant Sprayer

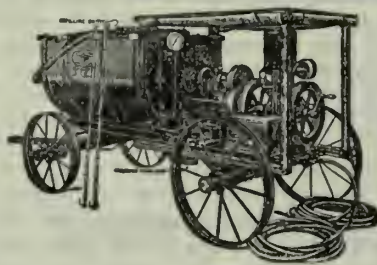
MOST PERFECT POWER OUTFIT IN THE WORLD

The Bean Giant will do more work at less cost and with less trouble than any other power sprayer on the market, without exception. It is the very acme of efficiency.

The engine and pump are direct connected, which makes slipping impossible. The Bean Pressure regulator is safe, sure and dependable. It saves from $\frac{1}{4}$ to $\frac{1}{2}$ the gasoline and the same proportion of wear and tear on engine and pump.

The bell metal ball valves cannot corrode, clog or stick. The porcelain-lined cylinder never wears out. The underneath suction avoids priming, increases capacity, and saves replacing cracked hose. The steel frame affords perfect rigidity and is much more durable than the old style wood frame.

There is an iron well in the tank which makes the tank easy to clean and drain. The patented cut-off and air suction in the tank makes it unnecessary to put out the suction hose. Every detail of the Bean Giant has been worked out to its greatest perfection. You ought to know more about it.



SEND FOR FREE CATALOG

It illustrates and describes the Bean Giant and the entire Bean line of hand and power sprayers and pump accessories. Don't invest in an outfit till you send for the book. State number and kind of trees when you write.

Bean Spray Pump Co.

Oldest and Largest Spray Pump Factory in the U. S.

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EASTERN FACTORY, BEREA, OHIO

Spray Pumps of all Kinds

and Spray Goods.
Spray Nozzles, Hose.
Pumps for Every Service and Use.
Gasoline Engines, Wind Mills,
Tanks, Pipe, Pipe Fittings,
Brass Goods.

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PUMP HOUSE**

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Send for Special Catalogue Mailed Free.



SEEDS

of superior quality. A large assortment of choice garden, flower, tree and palm seeds.

ROSES

Over sixty choice varieties.

FRUIT TREES

All the leading sorts.
Catalogue mailed free on application.

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NEW CATALOG JUST OUT—FREE!

SEEDS

LOW PRICES
NO BETTER SEED

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FERTILIZE WITH AIR

Direct Fertilization—The application of nitrogen gathering bacteria direct to the seed insures fertilization, in that it cannot be lost to the seed.

Inoculation as the best means of fertilizing legumes is an assured success and the expense is so small (\$2.00 an acre, \$9.00 for five acres) that maximum crops are within the reach of all.

Our inoculation is a permanent fertilizer for the soil.

For several years we have been selling

FARMOGERM

the only commercially successful preparation of bacteria. We can refer you to many highly pleased customers who have used it.

ALFALFA BEANS CLOVERS PEAS

all respond readily to inoculation with Farmogerm, and

200% Crops

are not uncommon. For Farmogerm booklet and our 1913 Complete Catalogue, address

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Germain Seed & Plant Co.
Established 1877
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1913

Catalogue now ready. Upon request we will promptly mail you one.

Write for samples and prices on all kinds of field seeds.

ALFALFA SEED A SPECIALTY

Valley Seed Co.

705 J Street, Sacramento.

LIME AIR SLACKED

H. B. MATTHEWS,
733 Merchants Exchange Bldg.,
San Francisco.

ganizations or lodges, which in turn might be composed of individuals or of both individuals and the already existing agricultural societies and associations; it could probably be supported with very small yearly dues. There would, of course, be need for a main central office, where political matters from all the scattered local lodges would centralize, to be in turn distributed as information, throughout the State. Movements for desired legislation might be initiated and perfected for presentation before State, county and municipal or other bodies, with the influential backing of numbers of voters to impress the legislators.

Other class legislation, or special privilege legislation might be watched, and by reason of a united rural vote, in instances prevented. In the event of negligent official action in the enforcement of laws, the recall could effectively be put in motion with the force of numbers and efficient management behind it.

There apparently would be created a great power for good, for it is without contradiction that rural populations have proved themselves much less corrupt politically, as well as morally, than the urban.

San Francisco.

WINERY MUSHROOMERY.

Turning an old winery into a mushroom farm is the "stunt" which has been successfully accomplished at Mountain View by A. Bussiere, a graduate of a French horticultural college, and a noted expert on tubercous plants.

The great wine cellars of the old Rogers winery have been converted into mushroom cellars and mushrooms which are found on many of the fashionable tables about the bay are grown in the semi-darkness of the excavations where some of the best known brands of California wine were once kept in storage.

Bussiere has two partners in the venture and the trio cultivate their own mushroom spawn from seed brought to this country from France.

Spawn for mushroom farms will later be shipped to all parts of the world from Mountain View, according to plans announced today. Bussiere said today that he has found the boast of the Chamber of Commerce that anything can be grown profitably in Santa Clara county not an idle one. He gathers the mushrooms twice daily for market shipments.

WHO WANTS BASKET WILLOWS?

Discovering that low, wet lands virtually impossible of cultivation, can be used for the successful growing of basket willow, the Department of Agriculture has announced that it would be ready next month to fill applications from "farmers and others" for basket willow cuttings grown on its experimental farm at Arlington, Va. Not to exceed 100 cuttings will be given each applicant. Recipients of the cuttings will be required on the treatment given the cuttings and the result.

The aim of the department is to obtain data as to the variety of willow best suited to the various localities. So far as the experiments have gone it has been found that the European species does not do nearly so well in this country as the native plants. Applications for cuttings are to be made direct to the Department of Agriculture, Washington, D. C.

She—Sometimes you appear really manly and sometimes you are effeminate.

He—I suppose it is hereditary. Half of my ancestors were men and the other half were women!—Tit-Bits.

CITRUS Trees

WE STILL
HAVE A GOOD
LINE OF

Navels and Valencia LATE ORANGES

ABSOLUTELY UNTOUCHED
BY FROST

Our stock is grown under ideal soil and climatic conditions, and is straight, clean and thrifty.

Write us for special
prices on large orders.

In addition to growing all the best varieties of oranges, lemons and pomelos, we also carry a complete stock of

DECIDUOUS FRUIT TREES

in nearly all the most wanted varieties.

PECANS AND ALMONDS

We have a fine stock of these popular nuts and invite your inspection and inquiries.

EVERGREENS AND ORNAMENTALS.

In our Laguna Nurseries we carry a fine assortment of ornamental trees, shrubs, vines, plants, palms, roses, etc.

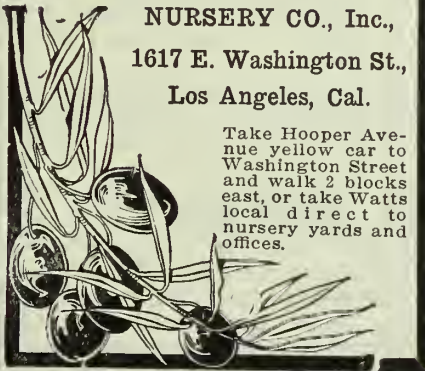
Write for Prices, or—
Call and see us.

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1617 E. Washington St.,
Los Angeles, Cal.

Take Hooper Avenue yellow car to Washington Street and walk 2 blocks east, or take Watts local direct to nursery yards and offices.



SANTA
CLARA
VALLEY
NURSERIES

MAX J. CROW,
Prop.
Gilroy, Cal.

IMPERIAL PRUNES on Myro.
BURBANK'S "STANDARD" PRUNE.
BARTLETT PEARS, APPLES, CHERRIES, ALMONDS, PEACHES, BLENHEIM AND ROYAL APRICOTS.
FRANQUETTE, MAYETTE AND PLACENTIA GRAFTED WALNUTS.
10,000 Loganberry Tips.

A complete line of other Fruit Trees, Ornamentals, Small Fruit Plants, Palms, Roses.

EUCALYPTUS

We have our usual stock of high-grade trees, to which we invite correspondence of intending planters.

W. A. T. STRATTON

Petaluma, Cal.

19 New Varieties Ettersburg Strawberries

PRICE LIST

	Doz.	100.
Ettersburg No. 80.....	\$1.25	\$5.00
" " 84.....	1.15	4.50
" " 91.....	1.00	4.00
" " 111.....	1.15	4.50
" " 112.....	1.15	4.50
" " 76.....	1.15	4.50
" " 94.....	1.25	5.00
" " 114.....	1.00	4.00
" " 116.....	1.00	4.00
" " 79.....	1.15	4.50
" " 71.....	1.00	4.00
" " 89.....	1.25	5.00
" " 121.....	1.25	5.00
" " 108.....	1.00	4.00
" " 93.....	1.15	4.50
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Rose Ettersburg	1.15	4.50

Send for catalogue describing all the above varieties.

ALBERT F. ETTER

Ettersburg Experimental Place,
Briceland P. O., Cal.

Hanford Nurseries

CLARKSTON, WASH.

TREES

That will Grow.
That are True to Label.
That are Free From Disease.

By arrangement with the Vineland Nurseries Company, we offer a limited number of

Red Gravenstein

Apple Trees for Fall Delivery.

See what Prof. E. H. Van Deman says of this wonderful new apple:

"For two years past I have seen the Red Gravenstein Apple at some of the fruit fairs in the West, and among them the National Apple Show at Spokane. I have also eaten it, and it is a true Gravenstein in every particular except color. In this respect it far surpasses the old variety, because it is almost solid red and exceedingly attractive. I think this difference will cause it to sell even better than the common Gravenstein, from which it is a bud-sport."

Hanford Nurseries

CLARKSTON, WASH.

Drawer 6. AGENTS WANTED.

SEEDS

THE BEST ON THE MARKET

All Fancy strains of Vegetable, Flower or Tree Seeds.

Get our catalogue describing same with cultural directions for California.

6 pkts. of our Famous fancy Asters, named, best on the American market, 50c.
¼ lb. Lettuce, our fancy Los Angeles Market variety, 25c.

MORRIS & SNOW SEED CO.,

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PLANT GIANT WINTER RHUBARB TO YOUR ACREAGE.

\$2000 per acre can be made. PLANTS NOW READY FOR SHIPMENT; also BERRIES, SMALL FRUIT, CACTUS, ASPARAGUS, Etc.

Write for information.

J. B. WAGNER,
(The Rhubarb Specialist),
Pasadena, Cal.

TREES

Write for prices on all varieties of Nursery Stock.

Dollar Strawberry Plants, \$5.00 per M.
Burbank's Patagonia Strawberry Plants, \$2.00 per 100.

UNITED FRUIT COMPANY,
Newcastle, Cal.

Distance Chart in Planting an Orchard.

The following table, prepared by Prof. C. I. Lewis of the division of horticulture of the Oregon Agricultural College, shows the proper number of trees to use to the acre in planting an orchard by the three systems, rectangular, quincunx, and hexagonal:

Distance apart.	Rectangular.	Quincunx.	Hexagonal.
16x16.....	170	303	196
18x18.....	134	239	154
20x20.....	108	192	154
20x22.....	90	148	104
24x24.....	76	132	87
25x25.....	70	125	80
26x26.....	64	114	74
28x28.....	56	100	64
30x30.....	48	85	55
32x32.....	43	76	49
33x33.....	40	71	46
36x36.....	34	60	39
40x40.....	27	48	32
45x45.....	22	39	25

"The distance to plant trees will depend somewhat upon the variety of fruit you wish to grow and upon the conditions under which you are working," said Mr. Lewis, discussing the question. "Where the soil is light in character the trees can be planted closer together than on the low altitudes. On some of the uplands of eastern Oregon and on some of the lands in western Oregon 25 feet will be sufficient for apples, but on very good soil 30 to 35 feet is preferable; pears, 20 to 25; peaches, 12 to 20; and prunes, 18 to 20 on the poor soils and 20 to 22 feet on rich loams.

"We find cherries will need the maximum distance, though some plant with fillers. The loss of cherry trees from gummosis and winter injury is great, so the system of fillers can be practiced. When the trees are first planted they will not need to be more than 20 to 30 feet apart, and by the time they are mature they will be about the right distance. They do not need to be planted 35 to 40 feet apart in the beginning. Walnuts require 40 to 60 feet.

"Before ordering trees determine carefully the acreage you wish to plant and the system you are to adopt in planting the trees. It will make a great deal of difference whether you plant the trees in rectangular, hexagonal, or quincunx. The most common system of these is the rectangular. In this system the square or rectangles are easily cultivated; however, this does not give as many trees to the acre as many other systems, and they are not equally distributed over the land.

"The hexagonal system means that the trees are set out six trees in a circle with the seventh tree in the center. When set out this way the trees are equally distant whatever direction you look and the trees use equally the ground and air space, so that you have a splendid distribution. It is not quite as easy to tell, except when the trees are young. From a horticultural point of view this system is not altogether satisfactory, for it does not lend itself so easily to the filler system. This system gives about 15% more trees to the acre than the rectangular.

"The quincunx system is desirable where fillers are to be used. It means planting in squares or rectangles and putting a filler in the center of the square or rectangle. When the orchard is mature the center tree can be taken out. This will bring 75% more trees to the acre than the rectangle system and lends itself very nicely to the filler system.

"Take a piece of paper and figure the arrangement all out before you set the orchard. Do not plant trees at such a distance that when you come to thin them

out the trees will be too far apart. Make a careful study of the work at first and will help very much.

FARM CREDIT FORTHWITH.

To the Editor: I am introducing in Congress a bill providing farm credit. The principles involved are sound. If no action can be secured in this Congress I will re-introduce it, slightly revised, in the next Congress.

It proposes a greater, speedier co-operation than that of scattered groups of high-interest victims waiting for the unfolding under American conditions of a self-help system which dragged slowly into general usefulness under European conditions, different than ours, after a wait of over fifty years.

It means co-operation wherein the U. S. Government—belonging to all of us—co-operates with the farmer to destroy usury and conserve our only source of food, for all of us.

If it is not paternalism for our Government to lend money to the banks at 2%, it cannot be paternalism to lend money to the farmers at 4½%. If lending money to banks on security of municipal and railroad bonds is a safe business it is safer business to lend upon the security of the farm—the earth itself.

The farmers of this country pay over \$510,000,000 annual interest. The average cost is about 8½%. The December value of the 1911 wheat crop was \$543,063,000. Thus, nearly the entire wheat crop was consumed by interest on farm debts. In the last analysis the consumer must pay this interest charge.

The Bathrick Bill would reduce the average interest burden nearly one-half. It would pay all the costs of operation, and provide a large fund in the hands of the Government (approximately from ten to twenty-five million dollars per year) with which to meet losses or to reduce the taxes of the people.

There seems no reason, with the Government's long-time borrowing facilities that an amortization plan could not be carried out by the Government.

After frequent gifts of large tracts of land to railroads it may be hard to convince the farmer that State (Government) aid in farm credits will spoil him. The Government has often guaranteed railroad bonds. In effect, my bill only requires that the Government guarantee farm land mortgages. For this guarantee it is protected by the land itself. No security could be better.

Exportation of food products it decreasing and total production is rapidly approaching total consumption. This is of interest not only to the farmer, but to every city resident as well. Germany faced this problem in the exigency of imminent famine. To be forehanded and anticipate such a contingency by proper legislation is good government business for all of us.

E. R. BATHRICK, M. C.
Washington, D. C.

CALIFORNIA DRIED PERSIMMONS.

Dried Japanese persimmons, one of the new Oriental fruits to be grown in California, says the Western Canner, have made their appearance on the market in Fresno. This is the first year that the California-raised Japanese persimmon has been placed on sale in Fresno. The fruit is grown near Sanger on the ranch of Mr. Ihara, trees having been brought from Japan ten years ago by Messrs.

REX SPRAY MATERIALS

SPRING SPRAYING WITH

REX { Lime and Sulphur Solution Arsenate of Lead

DOES RID YOUR ORCHARD OF INSECT PESTS AND FUNGUS TROUBLES.

DOES GIVE ADDED VITALITY THAT PRODUCES FOR YOU MORE FRUIT AND MORE GOOD FRUIT.

Rex Solution

Compounded after our own distinctive process is so put together as to give the

MAXIMUM AMOUNT OF SULPHUR IN ITS MOST EFFICIENT FORM

Rex Ingredients are processed—
Not simply thrown together and boiled.

For Scab—for Scale—for Peach Worm—for Curl Leaf—for Red Spider—for Grape Mildew—for numerous other troubles.

As an insecticide—fungicide—vitalizer there is no other solution producing results equalling those following the proper application of REX applied at the proper time.

REX ARSENATE OF LEAD has for years killed every worm in hundreds of orchards. It will do the same for you this year. Try it.

Spray This Spring—

Write, giving us the number, variety and kind of trees under your care, telling us what troubles you have. Spray Anyhow. It Pays. Our Motto—"Rex must be the best. The King of all Spray Materials."

CALIFORNIA REX SPRAY COMPANY

Benicia, California

The Fresno Nursery Co. Inc.

HONEST NURSERY STOCK

Fruit Trees Grape Vines Fig Trees

We are the Largest growers of this stock on the Pacific Coast. We grow a complete stock of

PEACH, ALMOND, PRUNE, PLUM, APRICOT, APPLE, PEAR TREES.

Grape Vines—All Varieties.

40-page Catalog and Price List free.
Send us list of wants, for quotations.

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THE FRESNO NURSERY CO., Inc.,

F. H. Wilson, Pres.
C. B. Harkness, V. Pres.
Chas. A. Chambers, Secy.
The Reliable Three.

P. O. Box 615,
Fresno, Cal.

ARE YOU INTERESTED IN APPLE PLANTING? IF SO, LOOK OVER THIS LIST OF VARIETIES:

Gravenstein
Jonathan
N. Y. Pippin
Winter Banana
Yellow Bellefleur
Yellow Transparent
White Astrachan

Red Astrachan
Arkansas Black
Red June
W. W. Pearmain
Wagner
Baldwin
Stayman Winesap

Rome Beauty
Alexander
Spitzenberg
Ben Davis
Black Ben
Delicious
Missouri Pippin

A post card will bring you our price list and descriptive Catalogue. Your order will bring you these trees, freight prepaid, and if given proper care and cultivation, they will bring you an income that will bring you to the sunny side of Easy Street.

CHICO NURSERY CO., Chico, Cal.

MARTINEZ NURSERY

ESTABLISHED 1884

Leading varieties of Pear, Apple, Plum, Prune, Peach, Apricot and Almond Trees. Grape Vines. Orange and Lemon Trees. Ornamentals, etc.

Catalogue and prices on application.

THOS. S. DUANE, Prop., Martinez, Cal.

KETSCHER'S NURSERY

All leading varieties of deciduous, citrus, grafted walnuts and ornamental trees.

SANTA ANA, CAL.

TREES

A general line of Oranges, Lemons, Deciduous Nursery Stock, Roses, Shrubs, etc.

A. R. MARSHALL'S NURSERIES

Corner 3rd and Bush Sts., Santa Ana, Cal.

Ihara and Hasegawa and planted. The persimmons so far grown are about as large as large prunes. They have a taste of dates, but are not quite as sweet. Twenty acres of land in the vicinity of Sanger have been planted with the Japanese persimmon trees. As soon as the trade is placed on a firm basis in Fresno

the promoters of the new industry will commence to ship their product over the State and to the East. Japanese pronounce the soil of Fresno county as being especially adapted for the raising of persimmons. It is expected that many Japanese will go into the business of growing the fruit for commercial purposes.

Australian Fruits in London.

[All matters of long-distance fruit shipments are of direct interest to Californians. The operations of southern hemisphere countries, necessarily by sea, have special interest to Californians because the opening of the Panama canal will place us on the world's great waterway without the handicap of rounding Cape Horn. What can we expect from our apples and pears, for instance, in the markets of northern Europe? There are certainly some difficulties to be overcome. The report we have to present below shows that Australia has difficulties in spite of her apparent advantage of having opposite seasons and a chance to ship fresh fruits to sell against cold-storage fruits of the same kind. This, however, counts for less with the apple than with other fruits, and crossing the tropics may be hard also. The report below, from the Adelaide Observer of January 4, 1913, should be carefully studied.—EDITOR.]

THE 1912 SEASON MOST UNSATISFACTORY.—Although the Australian fresh fruit export trade has now reached an approximate yearly output of 1,250,000 bushel cases, there is a general feeling that all is not well with the industry. This dissatisfaction has been developing for years, and the 1912 harvest (says the general manager of the Government Produce Department, Mr. G. A. W. Pope) shows such meagre net returns that many growers are positively proclaiming the growing of apples a financial failure, while even the most optimistic are somewhat dreading the future. Fortunately, however, the troubles are confined to causes which to a large extent can be overcome by a proper system of "co-operation" among producers.

BRANDS, GRADING, AND PACKING.—The first trouble is the multiplicity of marks shipped and the irregularity of grading and packing. If only the growers will co-operate to minimize marks and brands, to make a uniform grade, and to prohibit the shipping of immature and overripe fruit, the way will be paved for the same organization to take up and insist on the proper sea carriage and marketing of their produce, and thus bring about the reform now so urgently needed. I believe all that is required for the betterment of the conditions on board ship is the combined voice of the producers positively naming their requirements to the shipping companies, and it must at least be conceded that the companies have not yet had an opportunity to refuse such requirements. I am no believer in the existence of a ring in the English fruit markets; there is too much confusion there for that to be possible. A combination of one of the State's producers would dominate the selling powers, and, if it were possible to spread a system of co-operation, in so far as marketing is concerned, through the whole of Australia, its representative in the markets would practically place the business on a proper basis in one season. The fruit districts of South Australia lend themselves to the easy working of co-operative sections, and surely growers will realize that it is better to sacrifice a little, if need be, and act in unison with their neighboring growers in fighting a common enemy, than continue hopelessly and aimlessly complaining of the present conditions.

OUTPUT AND DESTINATION.—The output of the individual States for 1912 stand

as a record, not only for this State, but for the whole Commonwealth of Australia, as follows:

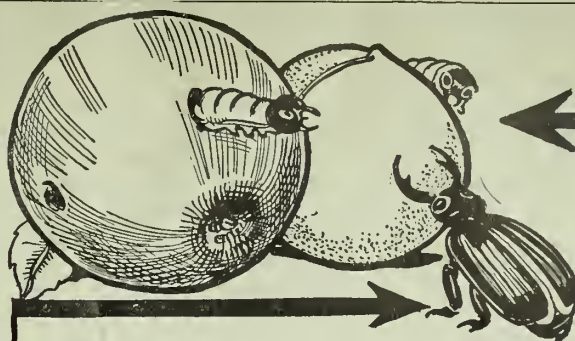
	1909.	1910.	1911.	1912.
Hobart	381,219	568,390	822,390	742,635
Adelaide	71,888	135,174	70,527	184,826
Melbourne	168,140	157,578	310,383	284,393
Sydney	146	2,535	4,123	5,147
Fremantle	667	3,250	9,200	35,813

622,060 866,927 1,216,623 1,252,814

It is interesting to note that while South Australia had a wide distribution of fruit from Adelaide last season, 85% of the total still went to London and Hamburg markets. Apple details: London, 107,272 cases; Hamburg, 50,446; Bombay, 8457; Colombo, 2963; Antwerp, 2598; Stockholm 1838; Liverpool 1751; Batavia, 1436; Capetown, 1371; Genoa, 580; Durban, 498; Sourabaya, 270; Samarang, 77; Bremen, 15; total, 179,518.

SEASON AND QUALITY.—With perhaps the one exception that the actual shipments constitute a record in quantity, the season may be classed as one of the most unsatisfactory in the history of the industry. A protracted spell of unfavorable weather deprived the trees of sufficient nourishment to properly develop the crop, and consequently the fruit shipped was far below the average in size and quality, while and unusually large percentage had had to be rejected in the orchard as absolutely unsuitable for export. The arrival of the steamers was not so satisfactory as usual; consequently there was an abnormal amount of juggling in the adjustments of freight engagements, and even then much immature fruit was used to fill up. In respect to the apples entrusted to the trade commissioner for sale, the average for the eighteen shipments, aggregating 14,069 cases, was 8/1 a case gross, and 3/10 a case net at Port Adelaide. The average for the 4126 cases of apples shipped to Hamburg was 9/7 a case gross, and 5/1 a case at Port Adelaide. The best sale was 18/0 a case for 20 cases of Wellingtons. The varieties shipped through the department no doubt indicate fairly accurately pro rata the full quantities of such varieties exported. The bulk consisted of Cleopatras, Dunn's Seedling, Jonathan and Rome Beauty, and these well known sorts came out as the most remunerative. In all there were 54 varieties.

PEARS.—The quantity of pears shipped to over-sea ports totaled 5033 cases, against 7708 in the 1911 season. The results are very discouraging, however, as there is still no surety that the fruit will reach its destination in good condition. Take the sale of 60 cases of Josephines, which reached the depot on March 16, and were placed in cold storage. Twenty of these were shipped to Hamburg by the Grosser Kurfurst on March 26, and 20 cases were forwarded the same day by the Melbourne, to the same market. The first shipment realized 1/5, and the second lot 16/11 a case gross. The remaining cases were not shipped until April 4, by the Hector, to London, where they were landed in excellent condition, and found a ready purchaser at 30/0 a case. Evidently the conditions on board ship vary very considerably, so that shippers incur a heavy risk in shipping pears. The quantity shipped to the trade commissioner in London for sale (and exhibition) was 1482 cases, or about 30% of the total export. Not including the



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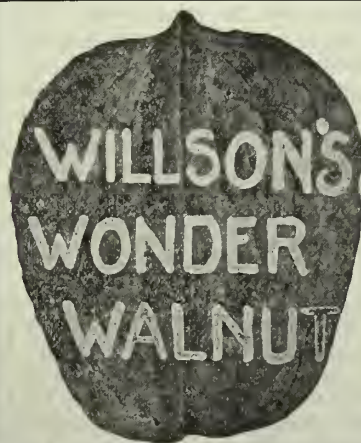
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Ascanius (condemned), and Moldavia (exhibition) shipments, the average works out at 15/4 a gross case at London, and 9/11 a case net at Port Adelaide. The average for the five shipments, totaling 282 cases, to Hamburg, was 13/8 a case gross at Hamburg, and 8/9 a case at Port Adelaide. In all, 15 different varieties were shipped.

DUCHESS PEARS.—Following on the success obtained with the trial shipment of Duchess pears from this State in 1910, and that from Victoria in 1911, the department arranged for a further trial shipment this season, and 790 cases (a few were Duronbeau variety) were sent by the Ascanius on February 7. Unfortunately, they were landed in such a rotten condition that all were condemned on arrival, and the shippers lost the fruit and 75/0 a ton freight. At the request of the principal grower interested, one case was kept in the depot cold storage, and upon being opened up 10 days after the steamer's arrival in London, the fruit

was found to be quite firm and in first-class condition. Victorian growers also shipped a quantity in this boat, but they likewise met with no success. Our experience shows that it is utterly impossible to expect any permanent safety in the carriage of pears generally, and Duchess pears particularly, when they are shipped with apples at the high temperatures generally maintained. The correct temperature is 30 to 33°, and this would be effective provided the fruit is in proper condition at the time of shipment.

FREIGHT.—It is reported that one Adelaide speculator's total applications to shipping companies last season amounted to 180,000 cases, which is more than the quantity eventually shipped through these companies from all exporters in South Australia, and was 160,000 cases more than the speculator actually forwarded. There are several possible explanations of his conduct, but from a public standpoint it is sufficient to say that it was either an attempt to corner the space, and thus control the producers, or the outcome of a knowledge that, with heavy crops and limited steamer accommodations, companies were bound to distribute space pro rata, so he made an application sufficiently large to ensure obtaining his full requirements under pro rata distribution. Other shippers are also liberal in their applications, with the same object in view, and taking this into consideration, together with the knowledge that no one can actually name their requirements six months ahead of the season, it is absolute folly for shipping companies to continue present methods, and it is disastrous to the producers to have to ship immature fruit, say, in February and March, just because space was engaged for it in October and November. Shippers of butter can obtain space on at most 17 days' notice to shipping companies, and if the whole of the output of butter from Australia can be satisfactorily shipped under these conditions, what possible reason can be put forward to make it necessary to have up to six months' notice for fruit. Both commodities come in regular seasons, and of the two the fruit season, taking all ports into consideration, is the most consistent. The speculative element in fruit freight can only be eliminated by the combined effort of producers, as the shipping companies cannot be expected to canvass each individual shipper.

PRE-COOLING AND TEMPERATURES.—The majority of the fruit now shipped is pre-cooled at the depot, and producers will be wise to take advantage of this by having their fruit in store at least five days before shipment. What is required from the ship is a proper temperature for the voyage not later than 48 hours after our fruit is aboard, and it is not reasonable to expect this unless growers are prepared to offer their fruit in a condition which will enable the ship to obtain the desired result. Once having established our system, it will be fair to approach the companies with the request that a hold shall be set aside for pre-cooled fruit, and that the right temperatures be maintained from the commencement of the voyage. Shippers should strenuously fight any attempt to ship hot fruit with pre-cooled, or to put it into a chamber which contains fruit which has not been reduced to a proper carrying temperature. Ships refuse to take butter not properly frozen, and the ultimate result will be that they will also refuse hot fruit. At present we know very little about the temperatures maintained on ships, or for how long after leaving port unsuitable temperatures prevail, owing to the difficulty of cooling fruit received in overheated conditions, and we will remain in ignorance until the producers are in unity.

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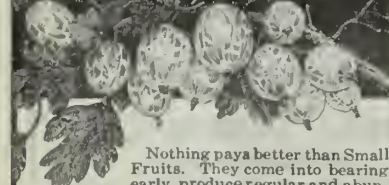
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The Burden of Compensation.

At a meeting of farmers and growers at Lodi last Saturday, where the fight against the iniquitous provisions of the Workmen's Compensation Liability Law has met the most vigorous opposition, Mr. A. J. Pillsbury appeared to state the case for the proposed law. A report of this meeting has been sent to us by Mr. Robert G. Williams, Chairman of the Liability Law Committee of the Fruit Growers Convention of California. Further comments by Mr. Williams will appear in a later issue. The report follows:

To the Editor: A meeting was held at Lodi on Saturday, the 22nd inst., for the purpose of hearing Mr. A. J. Pillsbury, of the Industrial Accident Board, explain the scope and design of proposed legislation on Workmen's Compensation Liability.

Mr. Pillsbury began by explaining the features of Senate bill No. 905, which is the Administration measure, and followed this by an estimate of the cost and a showing as to where the burden would fall. The workman's compensation theory was alluded to as the "greatest movement in human history"—"a great temperance movement."

Mr. Pillsbury reversed himself somewhat as to theory—industry should bear the cost—it is not essential that the cost be added to the price of products, as formerly contended. As to the farmer, it is a question of rental value of land. If the cost of producing is greater, rents will be less.

The figures given were as follows:

Number of farms in State	93,424
Total value	\$1,532,807,624.00
Value per farm without compensation	16,407.70
Value of farm (average) with compensation	16,238.00
Rental per farm without compensation	\$20.38
Rental per farm with compensation	\$11.43
Depreciation of the land of the farm.....	168.30
Depreciation of all of the farms of State.....	15,723,259.20
Average cost of labor per farm	923.00
Workman's insurance cost per farm	8.94

Note.—It will be noticed that this is only 1%. Rates elsewhere on agriculture are not lower than 2%.

Mr. Pillsbury stated this small item would never be noticed. "It is possible," he said, "farmers may be excepted out, but they would still be in such a relation to compensation liability that they would be worse off." They would accept it because they would be compelled to by the forces of labor, and they might just as well take their medicine. (A sad comment on the political and social unity of farmers.) The proposed scheme was likened to the wonderful system of Germany, which he highly eulogized.

He was asked for his view of the treatise and conclusions of Dr. Friedensburg, who was for twenty years president of the Senate of the Insurance Department of Germany, "that the State insurance, designed to replace pauperism and charity, is itself merely pauperism under another form; that it has fostered to an incredible extent the German evil of bureaucratic formalism, and that it has become a hotbed of fraud, and therefore a spreader of demoralizing practices and ways of thought."

Mr. Pillsbury met this question with the assertion that he was familiar with Dr. Friedensburg's writings and that the doctor was a standpatter, a sort of disaffected element, that he dealt with the

abnormal and was of little consequence in the discussion.

The committee on liability legislation of the Fruit Growers' Conventions of California will ask for a hearing before the committee on capital and labor, to which has been referred Senate bill No. 905.

ROBT. G. WILLIAMS,
Chairman Liability Law Committee of the
Fruit Growers' Convention of California.

The opinion of Mr. George W. Ashely on the meeting is as follows:

To the Editor: According to previous agreement, Mr. A. J. Pillsbury, chairman of the present Accident Board, spent several hours in Lodi, February 22, and at a well attended meeting tried to convince the farmers and growers that he was right and that they were wrong in regard to his liability legislation. I think, however, that he will admit that he made very poor progress and did not gain a single adherent, except possibly two, upon whose emotions he seemed to make some impression by his evangelical address.

The principal reason for his failure was that he based his argument upon the false ground that two wrongs make one right. The clause in the Boynton bill, "without regard to negligence," being his chief stumbling block, his argument being that one could not always have one's mind upon his work, and that if during a lapse of memory or a flight of imagination one should get hurt one should not be made to bear the burden. While nearly all present thought that society in general should stand for this, they could not see why they should be singled out individually and be cinched to pay the bill.

For instance, if a man should walk up behind an animal and, without speaking, slap it and be kicked into eternity or insensibility, the grower did not feel that he should be compelled to pay the damages. Nor if in hiring Tom, Dick or Harry he, without his knowledge, hired someone who was subject to lapses of memory or flights of imagination and who was hurt in the one hundred and one ways that are open to carelessness, again the grower felt that individually he should be exempt, believing that society in general should make it good.

But Mr. Pillsbury would have none of this, claiming that the industry should pay for it, forgetting that without insurance each individual case would be a separate case and not upon the whole industry. Mr. Pillsbury offered as a remedy for this his insurance scheme, telling the farmers and growers that compensation insurance would only cost them \$1 on the \$100 of pay roll, notwithstanding that in about the same breath he had told them that the insurance people claimed that if they settled the claims that were put up to them, justly, they would have to raise their rates, and that he, Mr. Pillsbury, was inclined to agree with them. Also forgetting that in that morning's publication of a Lodi paper he had said that it might not be below \$1.25. Added to this was the knowledge that some of the State insurance funds in other States were bankrupt.

The growers were somewhat inclined to believe that Mr. Pillsbury was trying to hand them something, in order to try and get them to let up on his pet measure.

The average grower here believes that the Rosebery law, the proposed Boynton act, and other acts of a like nature are class legislation pure and simple, class legislation by which the property of one class is confiscated and given to another class. I use the word confiscated intentionally, because when Mr. Pillsbury takes the property of the farmer to pay for an accident he is in no way responsible for,

"without regard to negligence," he is confiscating.

In the legislation asked for, the Accident Board takes care of about everybody except the farmer; for the contractor, manufacturer and storekeeper will add it to the cost, the same as rent, taxes and insurance. And the proposed law takes care of the doctor, nurse, etc., while on page 22 they take care of the lawyers' fees. Some might be mean enough to wonder if some of the present board are lawyers. Again, on page 2, the present Accident Board is retained as the new commission. Again, on page 30, they free themselves from private liability for mistakes or misdeeds performed during "lapses of memory or flights of imagination" during their term of office.

This commission is to have control of immense sums of money, to be all powerful in the appointment of guardians, to

be the court of last resort as to the findings of fact in all industrial accident claims, with no right of reviews as to the facts by a court of justice. In fact, if this law goes into effect this will be about the most powerful machine in the State, and added to the cry for the recall of the judiciary will be a yell for the recall of this Accident Board that will be heard from San Diego to Siskiyou.

With the Fish and Game Commission on the one side, for fear of which the farmer dare not shoot, even upon his own property, a wood-pecker, lark or rabbit without danger of arrest, I say, with them on one side and this Accident Board upon the other, the farmer should love the present administration. As one farmer said the other day, "about the worst accident he knew of was this Accident Board." For the love of Mike, leave us farmers out of it!

GEO. W. ASHLEY.

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What the Dairymen Want.

In these columns the endeavor of the dairymen to get fair legislation has been discussed. The things that the dairymen want and the reasons they want them are well expressed in a letter sent out by the secretary of the State Dairy Association, S. A. W. Carver, to the Governor and the legislators, as follows:

MILK SUPPLY OF CITIES.—"During the past few years in all our principal cities the disposition of certain ill-advised fadists and theorists among the medical profession and clubwomen to insist on freak, impractical and ruinous municipal legislation pertaining to the dairy industry, has forced the dairymen themselves throughout the State to actively and earnestly investigate and study all phases of the dairy business that could have any bearing on the public health, as well as matters that concern the dairyman himself from an economic standpoint. Accordingly, at all the recent gatherings and conventions of both dairymen and creamerymen, resolutions have been passed and committees chosen to present the grievances of the dairymen to the next legislature and ask for the passage of such constructive measures as will protect the public health and at the same time will benefit instead of blight the dairy industry.

"We especially insist upon the following propositions:

"First—Since the city health officials claim the right, in the name of protection to public health, to assume actual daily supervision and control of every detail of the work and business of the dairyman, from the breeding of the cow to the marketing of the finished product of the milk, we demand that such official supervision and control shall be placed in the hands of a city milk commission in the membership of which the dairymen shall have a representation; said commission to consist of the chief health official, who shall be chairman, one additional doctor, one veterinarian and two practical dairymen. What would the fruit man say if the doctors should demand the same right of supervision over the fruit industry as they now seek to exercise over the dairy industry?

"Second—If there is need of such drastic and comprehensive municipal ordinances regulating the dairy industry as are found in many of our cities, as a protection to public health, then there is equal need of the same legislation in all cities and all parts of the State for the uniform and equal protection of the health of the people of the whole State. In no two cities will you find this class of legislation the same, though several different cities will often draw their supplies of milk and cream from the same dairy district, and the dairymen are greatly hampered and embarrassed by the uncertainty and confusion in this mass of inconsistent municipal legislation. Hence there is great need of a uniform State law applicable to all cities, governing the milk supply of all cities in the State.

"Third—Such a uniform State law should include all that is good and eliminate all that is impractical or bad in all the present city ordinances of the State, and thereby accomplish an improvement even on the best among them. This is precisely what has been done by the committees having charge of the preparation of the dairy bills described below. Not only have we digested and tabulated the milk ordinances of the 28 largest cities of California, but we also did the same with the milk ordinances of the 44 largest cities of the United States, and we have embodied in these proposed bills the best features of all of them. Beyond question these measures embody the most complete, thorough, and yet practical sys-

tem of dairy sanitation to be found in the United States.

BOVINE TUBERCULOSIS.

"Fourth—All methods of dealing with bovine tuberculosis, to be successful, must necessarily proceed, primarily, from the standpoint of the economic loss or benefit to the dairyman himself (which means the welfare of the animal itself), and only secondarily, if at all, from the standpoint of possible protection to public health. This is the same method of diagnosis and treatment as your family physician would employ if called into your home, to wit: primary attention to the welfare of the patient himself, good nursing and care, good food, fresh pure air, and rest, as aids to recovery, and only secondary attention, if any, to efforts for protecting the public against infection from the patient. What would you think of your family physician if in treating your tubercular child his only anxiety and attention were directed to protecting the public by isolation and quarantine, leaving the patient to his fate and the disease to run its course? Any veterinarian who would pursue such a course with bovine tuberculosis should be equally discredited.

"These bills referred to embody a thorough yet practicable method of dealing with bovine tuberculosis, directly in line with the highest and best modern authority and in accordance with the results of all recent scientific investigations; such a method as will benefit the dairy industry and at the same time afford complete protection to the public health.

"Fifth—The dairymen of the State have committed themselves to the following declaration:

"We believe the dairy industry is benefited by every forward movement along the line of better dairy herds, better dairy methods, better dairy sanitation and better protection to the public health against any possible infection of the milk supply, and we will do our utmost in every reasonable and practicable way to eradicate and control disease of every kind, including tuberculosis, among our dairy herds, so long as we keep on safe and proven ground."

LAWS TO SECURE THE FOREGOING.

"We are now proposing to carry out that pledge by asking the legislature to pass the following four bills, to wit:

(These bills, introduced in the Assembly by Assemblyman Guiberson and in the upper House by Senator Cogswell, have been spoken of before and need not be gone over again. They provide: 1. For uniform and reasonable inspection of dairies supplying milk to municipalities. 2. A companion bill to the latter, relating to country dairies in which municipalities have no special interest. 3. Making more effective the present law to prevent the importation of diseased live stock. 4. Relating to the sale of certified milk.

STANDING OF THE DAIRY INDUSTRY.

"The State of California has over 500,000 dairy cows, of a value around \$35,000,000. The annual product from these cows which reaches the market amounts to more than \$33,000,000, and if we include the vast quantities consumed as food in the homes where cows are kept, it will exceed \$40,000,000. The capital invested in the dairy industry, including dairy farms, will exceed \$200,000,000. Our dairy industry is second only to our great fruit industry. Its growth has been phenomenal during the last few years. No industry in the State is so widely and evenly distributed among so large a percentage of the population, mostly people of small means. Such industries as the citrus industry are largely in the hands of a comparatively small

number of people of large means who ship their crops to Eastern markets. Next to bread itself, our dairy products make up a larger and more indispensable portion of the food supply of the average fam-

ily than is furnished by any other industry.

"Would you help to check the ever-increasing high cost of living? Then foster and encourage the dairy industry in

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My great bull, POLO BLEAK HOUSE, is the best bred sire now living and is bred to a good many of the heifers that will be sold.

All stock fully guaranteed.

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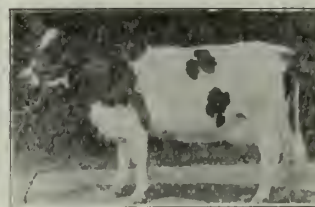
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every practicable way. One quart of milk costing 9 cents on the city market is equal in food value to any of the following:

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"Two pounds of salt fish, at 40 cents.

"Eight eggs, at 30 cents.

"Two pounds chicken, at 66 cents.

"One and one-half pounds of ham, at 45 cents.

"One quart oysters, at 30 cents.

"The cow is the most economical producer of food of any animal or institution known to the human race. The same quantity of rations, and at the same cost, when fed to the average cow will produce more than six times the digestible human food as when fed to the average steer for beef-making purposes, and nearly four times as much as when fed to poultry.

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"No industry in the past has mixed so little in politics, or has asked so little aid of the State. Hence we now feel justified in claiming in full measure the consideration to which we are entitled.

"For all these reasons, and guided by the best interests of all of the people of the State, we ask that you help us in promoting the welfare and development of the dairy industry, and that you give to the bills above described your favorable consideration."

WISCONSIN DAIRY COMPETITION.

The Wisconsin Experiment Station has recently published a bulletin which gives in detail the facts regarding a competition in dairying in which 56 breeders and farmers entered 448 purebred and 58 grade cows, of which 395 made yearly records under the rules governing semi-official yearly tests. These show what good cows will do, and how much difference there is in cattle.

The net returns ranged from \$154.44 profit to \$6.10 loss per cow, not counting labor, and averaged \$62.85. Nearly two-thirds of the competing cows produced an average of over 400 pounds of milk fat. The best cow (a Holstein) gave 21,972.9 pounds of milk, containing 888.157 lbs. fat. The first prize herd of 10 cows averaged 16,044 pounds milk and nearly 600 pounds milk fat.

The Holsteins averaged more milk and milk fat and higher net returns per cow, but the Jerseys and Guernseys produced more milk fat for the amount of feed eaten. The production of the competing grade cows compared favorably with that of the purebreds and shows what improvement can be made by the use of a purebred sire.

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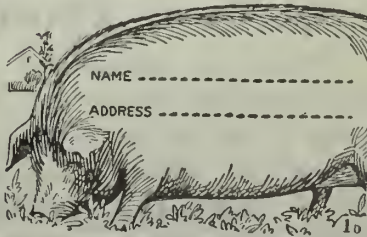
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Holsteins vs. Jerseys.

[Written for the PACIFIC RURAL PRESS by
J. C. LOOMIS.]

In talking with different dairymen over the big interior valley, one finds different views as to the best breed of cows to keep, and from the information obtained in this way, the writer, after summing up the situation, has found the following notions prevail in most places. We shall confine ourselves in this comparison to the Jerseys and Holsteins, as they are the breeds mostly used in this locality, although Guernseys and the other breeds are gradually creeping in.

Those dairymen who milk over 30 cows and who own from 35 acres upward seem to prefer the Holstein, and give the following reasons for so doing:

First, as everyone concedes, they give a large flow of milk which as a rule gives a good test, although not nearly as rich as the Jerseys.

The benefits claimed for the extra milk, while the total amount of butter-fat secured is perhaps no more than with the Jerseys, is the skimmed milk for hogs. On the larger dairies one finds hogs a big by-product and also a profitable one at the present pork prices, and it is claimed that with less skimmed milk this revenue would be considerably lowered, which sounds reasonable.

The next and perhaps second reason would seem to be the gentle disposition characteristic of the Holstein. In dairies of 30 cows or over most dairymen have to employ one man or more, and most everyone finds it hard to get a good milker who will stay for any great length of time, especially if he has duties other than milking to perform on the ranch. It is claimed that changing of milkers from time to time affects the Holstein less than the Jersey, but this we consider an open question and perhaps not true in all cases.

The chief benefit from a quiet disposition, though, is in the handling of the stock at milking time, and here one can daily see instances where not only the hired man, but in lots of cases owners themselves, go to the pasture with a snapping dog and who, after driving their cows into their stanchions, continue to abuse with hot tongue and toe. When this happens to a nervous or high-strung cow like the Jersey, the supply of milk is greatly diminished, and while this holds good in all breeds, the Holsteins are not so sensitive on this point.

After seeing the careful handling that cows are given at the milking contests at fairs, it seems peculiar that dairymen do not learn the benefits to be derived from careful handling at milking time.

The third and last reason to be considered here is from the butcher's standpoint. Holstein men claim that where their calves sell for from \$10 to \$12 as veal, the smaller breeds either have to feed a calf too long to get the size for profitable selling or else realize scarcely

anything for the young calf. Also where a cow has served her usefulness as a milk producer she can readily be sold to the butchers' buyer, whereas with the smaller breeds it is harder to dispose of them and not nearly so much can be realized from their sale.

There is no doubt but that the above points must gain recognition, as in the larger herds one finds the Holsteins more popular in most places, and since California has produced two cows with world's records for milk production in this breed, much more interest is being shown in the Holstein class.

The claims for the Jersey, aside from the breeder or seller, come mostly (not always) from those who have less than 30 cows to handle and who therefore do their own milking and have in consequence less land. Their first claim demanding recognition is that a Holstein will consume almost double the amount of feed a Jersey does, and, while we do not know the exact difference in figures, it is safe to say the Jerseys have a big lead here, and on a small ranch where the largest possible number of cows is to be kept, they undoubtedly have an advantage.

In regard to butter-fat, while the Jerseys do not produce nearly as much milk, as everyone admits, it is much richer, and while they do not at present hold the distinguished world's records, they average up in the general herd about the same amount of fat as the Holsteins. This, too, is an open question, always debatable.

While the skim-milk is not nearly so great in quantity, the smaller dairyman usually has plenty for all the hogs he cares to keep or has room for on his small area of land, and this, too, without having to perform as much labor in the handling of the larger quantity of milk necessary with the Holstein.

While the claim that the Jersey cow or calf does not bring as much from the butcher as the Holstein, it is thought that the difference in labor of milking usually offsets this point.

As before stated, the difference in disposition is not likely to be much of a factor with a dairyman who does his own milking as he usually has too much at stake to give his cows any other than good treatment at milking time.

In summing up it should be said that from our observations and also in talking with other disinterested parties we have noticed a considerable gain in the number of Jersey hulls being used by the smaller dairymen to signify that there is a great deal of merit to the Jersey breeders' claims.

In conclusion a person should select the breed which gives him the most satisfaction to handle and care for, as unless he does, no breed will do its best for him, and pride, which is such an essential feature in any business, is lost in his work, which soon becomes a drudgery.

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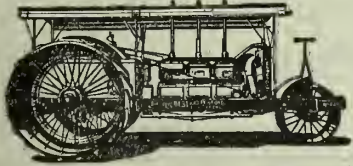
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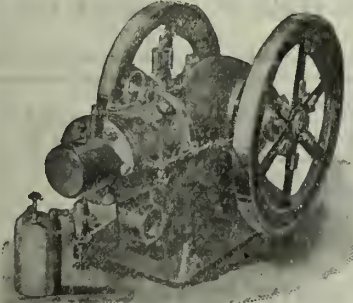
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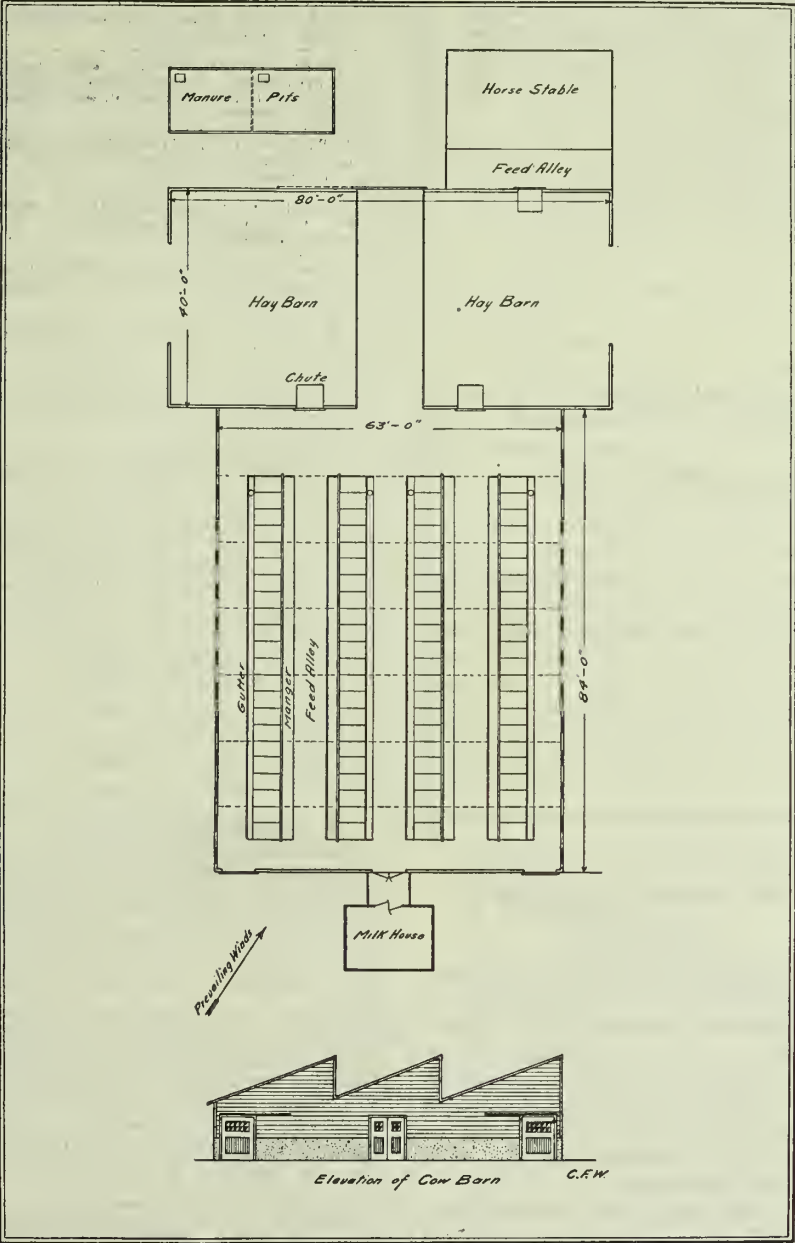
DAIRY BUILDINGS AND PLANS.

(Continued From Page 257.)

cover which could be opened and through
which the manure could be dumped from
the wheelbarrow. Each pit should have
a vent like a chimney, about 8 by 3
inches inside, and about 1 foot above the
cover. The top of this vent should be
covered with a screen, so that flies could
not enter or escape. Those that happened
to get into the bit or were bred there,

is saved, as the rest of manure is so
much more easily handled.

VARIATIONS IN SIZE.—For a stable where
\$0 or more cows are to be milked, four
or more rows of cows are desirable;
otherwise it will be too far to carry the
milk from some of the cows to the milk-
house. Where four or more rows are
desired in a stable, a roof as illustrated
in these cuts gives a splendid opportu-
nity for light and ventilation. The win-
dows should be fastened at the lower
end by two hinges and a chain at the



Floor Plan of Dairy Barn.

would gather under the screen where
there would be some light and could
easily be killed by throwing some hot
water on the screen.

HORSES.—If the place is small, and it
is not desired to have a separate horse-
barn, one could be built behind the hay
barn, so that the horses would be the
required distance (50 feet) from the milk-
ing place. A chute from the hay barn
down to the feed alley could be provided,
and the horse manure would be handy to
the manure pits, where it should be mixed
with the other manure. The most valu-
able part of the manure is the liquid,
which should be taken care of by con-
structing drains from the gutters in the
milking-shed to a cistern back of the hay
barn, from which it can be pumped up
and spread upon the land. By providing
drains to carry the liquid off, much work

upper end allowing them to drop in about
one foot. It would be still better for
those windows on the outside walls if
boards a little over one foot at the upper
end down to a point at the lower end,
were fastened inside at each side of the
window with a cleat at the inner edge,
so that the window, when allowed to drop
in, would, with the boards on the side,
form a chute through which the wind
would be forced up into the stable instead
of striking the cows or the men. There
are mechanisms on the market by which
a lever will, by one operation, open and
close all the windows in one row, both
in the roof and in the outside wall. But
as the placing of such mechanism is
costly, and since the windows in this
country need not be closed often, it can
easily be done by hand, or a stick can
be used to close those in the roof.

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Veterinary book which I paid \$5.00 for, but I believe I can get
more satisfaction out of Kendall's Treatise on the
Horse. I have the book you sent me before to an-
other barn boy."

And Mr. Wm. Booth, of Gravette,
Ark., writes:
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Feeding a Balanced Ration.

[Written for the PACIFIC RURAL PRESS by
J. C. LOOMIS.]

On a dairy recently visited the benefits derived from feeding a balanced ration with alfalfa over the method of feeding alfalfa hay alone was amply proven.

This herd consists of 25 head of grade cows and while they were being fed alfalfa with some grain produced around 20 pounds of fat per day. Several of the cows at that time were considered almost worthless and it had been planned to dispose of them until the following ration was started, since which time they have gained a great deal and where the herd was formally giving but 20 pounds of fat they are now giving up to 29 pounds 2 oz. or over a pound a day per head.

This ration consists of 32 pounds beet pulp and 32 pounds cocoanut meal mixed together with cane black strap molasses which has been diluted with from 50% to 75% water.

The beet pulp and cocoanut meal are put into a mixing box and mixed separately. This box should be a good deal larger than just to hold the amount of dry mixture as the materials swell considerably when dampened.

The molasses is bought by the barrel and is drawn off into five gallon cans as used. Ten gallons are drawn off on this ranch and poured into an empty barrel and diluted with water to the consistency stated above.

Enough of this is mixed with the pulp and meal to form a mushy mixture which is then put into a long feeding trough in the cow corral. The balance of the diluted molasses is fed to the hogs and considered as good as corn for a fattener.

The total cost per day is \$3, but after deducting the hogs' feed from this it brings the total per cow to about 8 cents per day or \$2 per day for the herd.

It can readily be seen that the increase in butter-fat more than offsets the cost of feed as at the present price of butter, 5 pounds at 40 cents will buy the feed, leaving the other 3 or 4 pounds profit to the owner.

Figured out, this rancher is earning from \$1.20 to \$1.60 a day more than before, and he also claims that he has less abortion than with straight alfalfa, which he believes weakens a cow's kidneys and other organs if fed alone.

OLEOMARGARINE AT SPECIAL SESSION.

To the Editor: After the Committee on Agriculture, by a tie vote, December 17, 1912, failed to report out an oleomargarine bill, the friends of oleomargarine on the committee expressed a desire to get the matter before Congress for its decision, and some of them agreed to help report out the Haugen bill. However, after the holiday recess, they seemed to have lost their desire for an immediate vote on the measure. The most ardent friends of the oleo makers seem to think that their chances for passing a bill such as the oleo interests want will be better at the next session. Of course, it yet remains to be seen whether the new members who will help to make up the Sixty-third Congress will be more amenable to the influences exerted by the big packers than are the present members.

If the packers can get the Lever bill enacted into law, it will mean millions of dollars profits for them. That they will eagerly clamor for the passage of this bill at the opening of the special session, there seems to be no question. But the dairymen and farmers of the country, as well as the friends of honest products and square dealing, are becoming more aroused, and when the matter gets before

Congress, we think the packers will find that not a majority of the Congressmen of this great country will be willing to fall down and worship at their shrine.

N. P. HULL,

Secretary National Dairy Union.
Dimondale, Mich.

SHEEP ON FOREST RESERVES.

The Oregon Wool Growers' Association has made the following declarations:

The primary reason for the creation of national forests was the protection of the timber and water supplies of the United States, and that the charge of grazing fees is but incidental.

The grazing fees, in some instances, are more than sufficient to pay the expense incident to both the protection of the timber and water supplies, as well as the supervision of grazing of stock therein.

The greater part of the revenue received by the national forest from grazing fees is paid by the sheep-raisers.

Sheep are the greatest preventive of forest fires known to the Forest Service, and the grazing fee charged the sheepherder is too high when compared with the fee required of cattle-raisers and horse-raisers.

The Association therefore recommends to the Secretary of Agriculture that the grazing fee in any single national forest be based upon the grazing income of that particular forest, and that in no case shall the grazing income amount to more than the expense of protecting the timber and water supply and the supervision of grazing therein; also that the grazing fees for sheep for the year-long season shall in no case exceed 12 cents per head, and that the short-term grazing fees be reduced in proportion.

A WARNING TO INHUMAN SHEARERS.

The Oregon Wool Growers' Association declares that practices in vogue at many of the shearing plants in Oregon invoked to promote speed in shearing have resulted in general injury to the sheep being sheared, and proper care and attention in many cases is not given to the handling of a fleece by the shearer after it is taken from the sheep's back.

The sheep-shearers are paid the highest wages of any laborer in connection with the handling and marketing of either wool or sheep, and the Association recommends to the owners of the shearing plant that they require each shearer employed by them to take all possible care to prevent the injury of sheep while being sheared and the fleece while in the shearing pen. It is the sense of the Association that the shearers should use both hands in catching and placing the sheep in position for shearing, thus necessitating the shipping of the machine and freeing the hand used in holding the shearer. It was resolved that the president and secretary of the Association communicate with the Oregon Humane Society and request that the attention of the Sheep-Shearers' Union be called to the laws of the State of Oregon governing the treatment of dumb animals.

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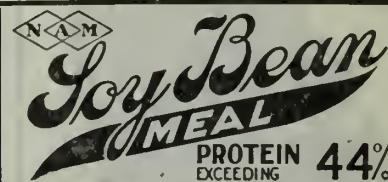
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California Butter Composition.

If a person ever wonders why creameries pay more for the fat in cream than they get for the butter itself, the following statement as to the composition of butter may shed a little light on the subject. Every dairyman knows that when butter quotation is, say, 30 cents, the creamery will pay from 32 to 34 cents a pound or thereabouts for the fat in the cream, although they will get for the butter only 30 cents a pound from the San Francisco wholesaler. The creamery pays expenses and makes the profit from the amount of water, salt and curd that he can put with the fat to make butter.

Recent examination of samples of butter from eight leading dairy States, including California, show that in 100 pounds of the average butter made by creameries there are contained 13.9 pounds of water, 2.5 pounds of salt and 1.18 pounds of curd, and only 82.4 pounds of fat itself. In other words, more than 17.5 pounds of every 100 pounds of butter is composed of something besides fat.

The California butter averages up 14.2% water, 1.05% curd and 2.64% salt, leaving 82.12% fat. In other words, the California creameries turn out quite a little more butter in proportion to the amount of fat they take in than do the average creameries in the rest of the country. Michigan, however, takes the palm, as the butter-makers there get 19 pounds of other matter than fat in every 100 pounds of butter.

COMPARISONS.—These results can be compared with the amount of water that it is permitted to work into the butter. They may also be compared with the methods that the dairy breed associations use to figure the production of cows.

The Federal law permits the sale of butter containing 16% of water, which can easily be worked into the butter. The most advanced creameries, in fact, try to graze the 16% mark as closely as possible, and get about 15 or 15½ pounds of water per hundred. The fact that California is nearly two pounds below the water the law allows and a pound and a half below a margin of safety shows that the creameries are not turning off as much butter as they might for the cream that comes to them. Not even Michigan creameries, as a matter of fact, average as much as 14½% of moisture.

None of the butter, averaged by States, contains as little as 80% fat, which some dairy breed associations use to calculate the amount of butter that cows produce in making records.

The butter made and packed by the U. S. navy contains only 12.2% water, according to the above report, and has less than 1% curd, which is below any of the State averages, and has 84.4% fat, well above any State average. On the other hand, there is 2.72% salt, which is above any butter except that made in Michigan, which is 3.3%.

As a matter of fact, if the Michigan butter is all right, and they, in addition, crowded in all the water they could and still be well within the law, they could make 100 pounds of butter from cream with 80 pounds of fat and sell 102 pounds of butter for every 100 pounds of butter now sold from creameries throughout the country.

AGAINST ELK PRESERVES.

The Angora breeders of Oregon do not favor setting aside large tracts of land for the future propagation of elk, and they make this declaration:

Last year several head of elk were shipped into Oregon and this year several head more will be shipped in. To feed these elk, large tracts of land, comprising our best summer and winter range,

are set aside. There is now a bill pending which is certain to come up next spring providing for the setting aside of many more and much larger tracts for this purpose. This bill will be passed just as it is framed unless you and every other wool grower oppose it. We may by our united effort defeat this bill, and it is certain we can cut these large tracts to be set aside for elk down to less than half.

STORAGE BUTTER DETERIORATION.

Examination of a great number of storage butter samples shows that butter made from unripened cream keeps very much better than butter made from ripened cream, also that there is a very much greater deterioration when butter is stored at 20° and even 10° than when it is kept at 0°F. Apparently there is no great difference whether butter made from pasteurized or unpasteurized cream, provided it is of equal excellence at the start. Butter from pasteurized cream that was ripened which scored 93.5 on going into storage came out scoring 91.7 when kept at 0°F., and scored only 89.9 when kept at 10°F. Unripened cream making butter that scored 94.6 when put into storage came out practically as good from a temperature of 0°F., scoring 94.2. Stored at 10° it came out scored at 93.1, and at 20° it scored 92.88 points, practically an extra.

BOVINE ABORTION.

To the Editor: I have a young cow that has been straining and passing bad grayish matter at times for nearly a month. She was presumably about six months along when she began. What is the remedy, and is the disease contagious? —G. H., San Luis Obispo.

ANSWER BY DR. E. J. CREELY.

Any discharge from the womb of a cow is dangerous to other cows that are pregnant. Irrigate with a teaspoon of permanganate of potash to one gallon of warm water once daily. This must be injected into the womb. I am fearful that the foetus is dead and mummifying. San Francisco Veterinary College.

BLIND TEAT.

To the Editor: Can you advise me as to the treatment of a "blind teat"? The cow has just freshened and that quarter of her udder is very full, but there is no milk in the teat. I have been rubbing and greasing the udder. The blind quarter is slightly inflamed. The first season the cow was milked her udder was all right, but the second season the milk could not be drawn from that quarter. This cow's dam and grand-dam had the same ailment. O. C. Modoc county.

ANSWER BY DR. E. J. CREELY.

An artificial opening should be made in the teat at once. Call in the nearest physician unless you have a regular graduate veterinarian near.

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For sale by PACIFIC RURAL PRESS, 420 Market Street, San Francisco

How to Get Fertile Eggs.

[Written for the PACIFIC RURAL PRESS by
Mrs. SUSAN SWAYSGOOD.]

This is the season of the year when fertile eggs mean a great deal to the person interested in hatching. They mean both a saving in money, time and labor, also of disappointment. For it is really a most disappointing thing to have eggs to turn, and after doing the work faithfully to find the eggs were infertile from the start. Most of us have to keep

But if the hens are yarded as well as housed, the exercise problem is not so hard to work out. The yard can be spaded up and sown to oats or barley that have been previously soaked in lukewarm water and the seed raked in. Now by having the yard seeded to barley or oats and the short litter in the house to feed grain in, it appears to me as if those fowls had the problem of fertile eggs solved, as far as exercise goes.

the third. For all of the small breeds a dry mash may be kept before them all the time, but it should not be of a fattening kind. No cornmeal, or at least a very small percent, not too much beef scrap or meat food of any kind, because it is not the quantity of eggs we are after but the quality. To be safe the mash should be composed very largely of wheat bran, ground oats, a small percent of beef scrap if obtainable, a food share of alfalfa meal, charcoal, and a little salt to make it palatable.

It is well to remember that animal food



KING MANOR I—S. C. RHODE ISLAND RED COCK OWNED BY THE MANOR FARM, PETALUMA.

A wonder in type and color and the sire of many winners at Los Angeles, Petaluma, San Jose, and other shows.

our fowls yarded, some are kept very closely yarded or housed, so it requires an understanding of what is needed to get fertile eggs, eggs that are hatchable.

The first thing that yarded fowls need is exercise. And a person needs to use his ingenuity in order to keep the hens active and busy. Something to scratch in is the first thing, and it must be of light flexible material, such as clover, alfalfa or short oat straw. Anything that is too long or heavy does not fill the bill because the hens cannot make it fly and soon get discouraged trying. When the fowls are housed, that is, kept in an open-air house without yard, this, together with a feeding device that scatters the grain among the litter is about the only form of exercise that can be relied on for the main exercise.

There are many little tricks, such as having perches set up where they may serve as a sort of gymnasium, having the nests where they are forced to jump up to them, hanging a cabbage or mangel up and letting them jump for each bit, etc.

The grain exercisers that are on the market are a great help where hens are naturally inclined to be lazy, because the jumping requires the incentive of seeing the grain. Naturally, as the grain scatters itself among the litter, the hens are going to seek it after seeing it fly, and thus two separate forms of exercise are obtained at one stroke.

Now the next thing in line is fresh air. When free, hens are mostly out of doors all the time, and in building houses that are intended for breeders we should bear this in mind. The open-front house is the only healthy house in which to keep breeders that must be confined. Since adopting this style of house I have never had one sick chicken from any cause whatever. Now this of itself is proof to me that warm housing and coddling of chickens is about as unwise as it is unhealthy. Fowls kept in open-front houses are not so susceptible to cold or changes in the weather, hence the laying is not affected by it.

FEEDING.—Now for the feed problem, which is a great item, although left for

is the chief reliance for getting eggs in quantity, so it should not be difficult for us to gauge the right amount.

The next thing in the food line is green feed, and while some must be given for best results, too much is not good, as it makes the eggs too watery for good hatching. A mess of sprouted oats about noon is about the best food I have found for fertile eggs. Not that we must be tied to any one food, but when we know it is the best, and it can be obtained at a reasonable price, then I say feed it. Some people say sprouted oats is a fad; well, maybe it is, but it is a fad that will put healthy chicks in your yards and keep them growing and thriving at a less expense than any other feed I have tried; so if it is a fad it is a good one.

BARLEY TROUBLES.—When barley is cheaper than oats, and can be obtained, I say use barley, by all means; but when prices are about on a par, as this year, take oats every time in preference to the barley. Not only because it is a better feed, but because it is easier to handle.

POULTRY.

THE MANOR FARM RHODE ISLAND REDS have won more prizes, cups and specials during 1912 at the big important shows than all their competitors. Utility or exhibition stock and eggs; also please remember if you order S. C. White Leghorn chicks from our 180-200 egg strain you will want more. Prices on chicks, \$10 per 100; eggs, \$5 per 100. Also Barred Rocks and Minorca eggs and stock. The Manor Farm, Petaluma, Cal.

MAMMOTH BRONZE TURKEY EGGS From the largest and best pure-bred flock in the world. All turkeys carefully selected, and combine the greatest prize-winners and the best blood of the East and Middle West. They have large bone, long deep bodies, full breasts, brilliant plumage and are healthy. No inbreeding. Write for further information. Geo. A. Smith, Corcoran, Cal.

OUR GOLDEN ANTLERS AND SILVER CAMPINES took several first prizes both for the fowls and the best white eggs at San Jose, November, 1912. From Jan. 1st to Oct. 31st, 23 hens laid 4148 eggs, and are still laying. Crystal White Orpington and Antler pullets for sale. S. & B. G. HAIGH, Route 2, Box 4C, San Jose, Cal.

BUFF LEGHORNS—Booking orders for spring delivery of day-old baby chicks from two-year-old breeding stock; also eggs for hatching by setting or 100; 6000 egg incubator capacity. Indian Runner duck eggs for sale. Baby ducks hatched to order. R. M. Hempel, R. F. D. 1, Lathrop, Cal.

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WESTERN HATCHERY—Fred Dye, Proprietor, successor to Dye & Fredericks. Now booking orders for day-old chicks, from heavy-laying strain White Leghorns. Prices on application. Box 2, Petaluma, Cal.

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WHITE ORPINGTONS—100 early hatched cockerels and pullets from prize-winners. Sales subject to approval on delivery. Eggs \$5 to \$15 per 15. Jeanne A. Jackson, Oroville, Cal.

THOROUGHbred WHITE ORPINGTONS (Kellerstraus strain)—Heavy layers. Hens \$3 up, Roosters \$5 up. Eggs \$3 per 15; fertility guaranteed. A. A. Leonard, 3526 Custer, Oakland.

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\$3.00 PER HUNDRED—Standard Thoroughbred White Leghorn eggs for hatching. Hatchable eggs from healthy hens. Heavy winter-laying stock. Andrew Emery, Kenwood, Cal.

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CHICKS—White Leghorn, White Rock; high-class stock. Send for booklet of prices. Mahajo Farm, P. O. Box 597, Sacramento, Cal.

BARRED ROCKS ONLY—Now is the time to order your eggs and hatched chicks. Send for price list. G. L. Hawley, Madera, Cal.

BARRED PLYMOUTH ROCKS, White Minorcas, White Holland turkeys. Stock and eggs only. L. N. Cobbledick, Oakland.

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CHICKENS, DUCKS, GEESSE, GUINEAS, Pea fowl. Address Wm. A. French, 545 W. Park St., Stockton, Cal.

TRAPNESTED S. C. WHITE LEGHORNS. Eggs, chicks, stock. A. R. Schroeder, Box P, San Gregorio, Cal.

WHITE LEGHORNS—Chicks, eggs, cockerels. Fine stock. Reasonable. O. B. Morris, Lodi, Cal.

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Send 25c and get "The Farmer Boy" 6 months. The only paper in the world published just for you. Send today to E. E. Barley, Editor, Exeter, Cal.

More Eggs for More Lime.

To the Editor: Everyone who has chickens wants to get more eggs because more eggs mean more money. Everyone who hasn't chickens is interested in any proposition that will coax the busy hen to lay more frequently because more eggs mean (maybe) a less price per egg. Every poultryman experiments with different chicken feeds, and the State experiment stations try different "balanced rations" and yet an average of 150 eggs per hen per annum is about the best they produce.

The chemical composition of eggs has been frequently published and we have all read it many a time, but I never remember seeing in any such analysis a statement of the amount of lime in an egg. Evidently the analyst emptied his egg shell and analyzed the contents and forgot all about the shell. In all the "balanced rations" for biddys that the writer ever saw published there were nicely proportioned fractions of protein, carbohydrates, etc., but nothing about lime; so that the poor hen has always been overfed on that which makes the contents of the shell and starved of that which makes the container for the contents.

We are repeatedly advised to supply our hens with "grit" but never told what kind of grit. Now, chickens must have lime, lots of it, and it must be in available condition so that they can make egg shells out of it, for the soft-shelled egg isn't a valuable article of commerce, nor is the very thin-shelled egg, which cracks very easily in transportation.

Chickens that run on a large range need less lime than those on shorter range because they catch and eat more bugs, and the hard integument or shell of a bug contains some lime in an available and assimilable condition, almost ready for immediate use for covering a hen's product. Did you ever notice that a hen will run a block after a horny-legged grasshopper, but that she won't eat a house fly at all? Did you ever notice that when a rooster finds a nest of nice black beetles he will call his harem and keep coaxing them until they eat them all? He knows that they did and that he didn't need any egg-forming material. The writer has seen hens ignore a box of crushed oyster shells and yet ravenously devour broken soft clam shells; instinct in this instance guided them to select the soft and spongy clam shell to the more gritty oyster shell.

What is wanted then is some form of lime that is soluble in the hen's gastric juice, or whatever you may call her digestive fluid. Our experiment stations and poultrymen should make some experiments along this line. The writer would suggest trying a number of small groups of hens, supplying each pen with different "grit" as follows—coarse crushed gypsum, crushed limestone (not crystallized), coarse phosphate of lime, a mixture of air-slaked lime with mash, a mixture of powdered super phosphate with mash, a mixture of powdered gypsum with mash, a mixture of all three of these with mash; also try various organic lime compounds, such as calcium-citrate, etc.

Some such method, in my opinion, is the only way we can hope to greatly increase the egg yield. In one of the late poultry magazines was a statement that the hen that laid the most eggs in the recent Missouri egg-laying contest laid quite a number of them soft shelled. In other words, it wasn't any trick for that hen to make the insides, but what stuck her was making the wrapper; so let us make some endeavors to find out how to supply her with wrapping material.—A. W. SMITH, Oakland.

The point is well taken: the only question being whether such emphasis on the lime is necessary. Before people learned that hens needed any other particular thing, they knew that lime was essential and every exhortation we have ever seen includes lime. But this exposition of the need of lime may be helpful to some readers. We rather object, however, to the rooster and the black beetle story. We always liked to admire such action as a manifestation of gallantry and we never observed that it applied more to hard-shelled bugs than to other delicacies of the gallinaceous menu.—EDITOR.

WHO WANTS LONG LIFE?

Harper's Weekly says: In the Middle Ages the average span of human life was about 30 years. The average among civilized peoples is now about 40 years. The startling prophecy that man would sometime only begin to understand life at 100 does not seem so unreasonable, perhaps, when we consider the span of life allotted to vegetables and to other animals. There exists at the present time in the island of Ceylon, a tree which was planted 288 years before Christ. In the suburbs of Athens travelers are shown the olive tree of Plato, which is 2000 years old. The plantain tree of Hippocrates, the father of medicine, is 2300 years old, while the giant redwood trees of California are estimated to have lived at least twenty centuries. Tourists in Hildesheim, Germany, are never allowed to pass the famous so-called "thousand-year rosebush" in the grounds of the cathedral. The list of legendary trees might be indefinitely extended and world trees include the chestnuts of Etra, the walnut trees of St. Nicholas in Lorena, the olives of Jerusalem, the yew trees of Yorkshire, England, which are 1000, 2000 and 2500 years old, and the cypresses of Mexico, which are considered the oldest trees in the world.

These figures are taken from the data of Dr. Legrand, a well-known French naturalist. He also points out singular differences in the longevity of animals of varying species. The crocodile and the carp live, he says, 300 years; the elephant and the whale 200; the falcon 150; the parrot and the eagle 100; the lion and the rhinoceros 60; the goose, common pike and pelican 50; the hart and vulture 40; the ass, bull and camel 30; the horse 25; the peacock from 23 to 25; the pig, bear, cow, pigeon, cat, dog, deer, wolf, and the fresh-water lobster 20 years; the duck, nightingale, lark, fox and pheasant 15; the canary and the cricket average 10; the rabbit lives 8; the squirrel and hare 7. Insects which undergo metamorphosis live usually from 1 to 2 years and there are flies whose span of life is one day. Nature, it will be seen, shows man no special favor or disfavor among the animals. The great epidemics which have disappeared at the edict of science, together with intelligence in the matter of living, are the chief causes which are favoring and will in the future favor man's longevity.

English statistics show that women born of large families live to the greatest age. The United States census in 1890

THE THOMAS HATCHERY
Petaluma

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Which are Cheaper and Better than all the rest, because we have Better Stock and Better Equipment and because we do give you Better Service.

Write for price list and pamphlet, mailed upon request, without cost.

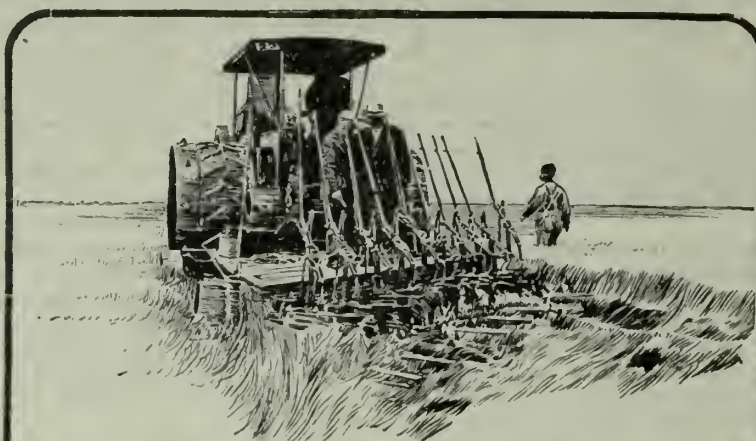
Single Comb White Leghorns a specialty.
CARL D. THOMAS, Proprietor,
Petaluma, Cal.

showed seventy-seven women and thirty-four men over 90 years of age.

The creamery at Oakdale, Stanislaus county, is almost completed and will

shortly be put in operation.

If you want to be known as a good adviser, confine yourself to urging others to be careful and go slowly.



Start Late—Finish Early

Wait till the ground is right before you start plowing. It may mean a late start—but with a



15-30 h.p. or 30-60 h.p.

you'll still finish early. The 15-30 will do a rush job on a small farm—the 30-60 will handle a big farm.

Good planning and an Oil Pull Tractor will do the work of two shifts of men and three shifts of horses and do it six days a week. Do your part and an Oil Pull will thrive with use and do more work each week.

The Oil Pull has all the best tractor features—capacity, durability, burns cheap fuel and is easy enough to operate—we teach you how. The tractor way is the progressive way—the Canadian way.



The Oil Pull Data-book No. 353 is complete. Send for free copy and ask the name of our nearest dealer.

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San Francisco, Cal.; Los Angeles, Cal.; Portland, Ore.; Spokane, Wash.; Pocatello, Idaho; or 473 LaPorte, Ind. (Home Office).

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Poultry Department, Hopland, Cal.

WHITE LEGHORNS

Selected and mated to imported stock cockerels.

BABY CHICKS at \$12 per hundred.

EGGS \$6 per hundred in lots of less than 1000 eggs. Orders in excess of this, 10c per dozen above highest market price one week before shipment. 75 per cent fertility guaranteed.

8000 hens yarded—sanitary conditions perfect.

Well raised—well culled—eggs will produce layers.

PENS—TRIOS—SINGLE BIRDS OF ALL BREEDS.

BUFF ORPINGTONS—WHITE WYANDOTTES—RHODE ISLAND REDS AND BARRED PLYMOUTH ROCKS.

EGGS at \$6 per hundred and \$15 per hundred for **BABY CHICKS.**

S. C. W. Leghorn Pullets in full laying from \$7.50 to \$15 per dozen.

Eggs and stock from prize winners a matter of correspondence.

UTILITY STOCK

NO CULLS



This picture is from an actual photograph, and the stove is the original and only perfect oil stove made. This stove has REVOLUTIONIZED the rearing of **BABY CHICKS.** It is

Arenberg's Patent Brooder Stove

and has proven to be the most successful brooding and heating stove on the market. Awarded Gold Medal for most meritorious California invention at California State Fair. Perfectly safe, simple, easy to manage. Burns Stove Distillate, Engine Distillate, Coal Oil, and, in an emergency, can burn Wood or Coal. For full particulars write

H. F. ARENBERG, Petaluma, Cal.

Live Agents wanted in every state and county in the United States.

MEXICAN LURES FOR FRUIT-GROWERS.

To encourage fruit growing in the State of Colima the legislature has followed the lead of Vera Cruz (as announced in Daily Consular and Trade Reports for September 27, 1912), and will offer monetary encouragement. Lemons, oranges and Roatan bananas will be the principal fruits for the growing of which prizes will be offered, although almost any fruit which has a market abroad may bring Government reward. Growing cantaloupes will also be encouraged and a prize of \$2500 gold will be given to the

first planter who harvests these melons from 300 hectares (740 acres) of ground. All grounds dedicated exclusively to growing the fruits mentioned in the bill will be exempt from taxation for five years.

Canning and preservation by other methods of fruits and vegetables will be encouraged by exemption from taxation for five years, and mills for the production of banana flour will be given a like privilege. Irrigation will be encouraged by exemption from taxation during a period of 10 years of land used for the cultivation of the fruits mentioned in the new law.

Growers of fine grapes, wild grapes, and

Mizpam cherries will be encouraged by a reward of \$5 for each hectare (2.47 acres) which shall be planted and cultivated with these fruits. The money will be paid to the first grower who shall harvest a crop.

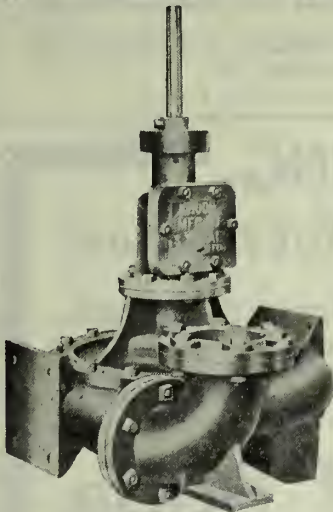
Any person who shall plant 100,000 cocoanut palms will receive a prize of \$10,000 as soon as his trees are in production. Small fruit-growers will be rewarded in proportion for each thousand trees in production. The prize will be given once only.

Machinery for cultivation and preservation of grains and fruits for export purposes is exempted from taxes, as is also

machinery for the production of fiber products.

The U. S. Department of Agriculture has announced that it will distribute cuttings of basket willows that it has selected as being very promising. The recipients are to take good care of the cuttings and report progress. These cuttings were selected from the most promising of 500 varieties taken from all over the world.

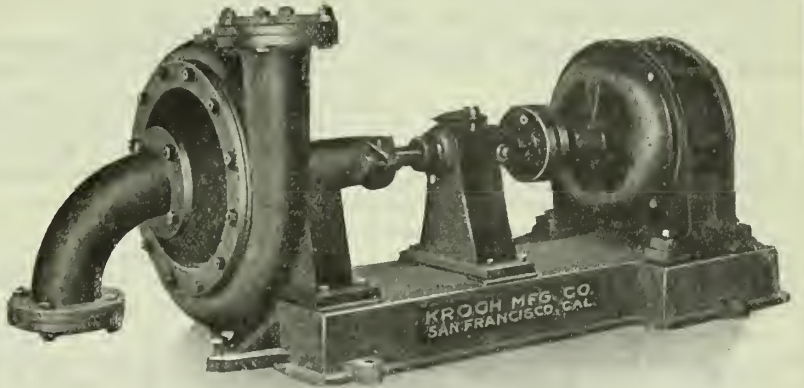
You never heard a really good-looking woman say: "You can't trust a man."



Krogh New Vertical Water Balanced Pump

CAREFUL IRRIGATIONISTS ARE INVESTIGATING OUR NEW WATER BALANCED PUMP—THEN BUYING IT.

Experience has taught them that a successful pump must be not only efficient but must also be capable of withstanding, to a reasonable degree, the cutting action of sand. Our pumps excel on this point. Bulletin No. R10 tells all about them.



Krogh Electric Pump

Our branch house, 206 N. Los Angeles Street, Los Angeles, carries a complete stock.

Krogh Manufacturing Company

149-157 BEALE STREET, SAN FRANCISCO, CAL.



The Only Tractor That Is Perfectly Adapted To All Farm Work

CATERPILLAR

The popularity of the Caterpillar is due principally to the fact that it is the only tractor that is perfectly adapted to all farm work. It will plow, harrow, seed, haul freight, pump water, run feed mills, saw wood, or do any of the numerous jobs that must be done. It is not confined to any one particular line of work, but is a perfect utility tractor.

The smooth steel track, with its enormous ground bearing surface, permits the Caterpillar to work regardless of road or weather conditions. It will plow in wet weather, when much of the plowing should be done. It will harrow and seed just as successfully as it will plow. It has sufficient traction at all times, and on account of its weight being distributed over such a large area, it cannot pack the land.

SEND FOR OUR NEW CATALOGUE. IT'S FREE FOR THE ASKING.

THE HOLT MFG. CO.
Stockton, Cal.

Gentlemen,
Please send me Catalog TE 48P. This does not obligate me in any way.
Yours truly,

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AGRICULTURAL REVIEW.

Grapes.

The California Associated Raisin Co., at a recent date, had secured a total of 2650 contracts on hand for raisins for the 1913 crop, and other contracts were coming in at the rate of 50 per day, according to Fresno papers. It is stated that these represented from 40,000 to 50,000 tons of a normal crop, which ought to give the company a commanding situation in the market.

The California Wine Association is obtaining a large number of contracts from Clovis growers at \$10 per ton. A few growers were holding out for \$11, but this figure has been thought to be impossible.

More Irrigation.

A large increase in the number of pumping plants used in Kings county has been accomplished recently. During the first 45 days of the present year there were 33 plants contracted for through several dealers, and a number of other plants went in that were not included.

A new irrigation district to cover 400,000 acres on the west side of the San Joaquin valley is under process of formation as a result of a mass meeting held at Crows Landing recently. A committee has just been appointed to carry forward the matter.

A committee consisting of Jesse Finley, Al Gatzman, Ed Rydberg, J. L. Prouty and T. W. Donnelley has been appointed to get an irrigation district started in the vicinity of Waterford and Hickman, near the Modesto irrigation district. The water will come from the Tuolumne river.

The directors of the Oakdale and South San Joaquin districts met in joint session recently and arranged upon a number of matters of mutual interest.

J. F. Garrette is putting in an irrigation system to cover 160 acres on his ranch north of Gridley, Butte county, to be used in irrigating rice. The water comes from three 8-inch wells, 56 feet deep.

Market Items.

The great agitation about frost injury in citrus districts is claimed by New York dealers to be responsible for lots of injury to orange prices in the markets. Dealers state that much of the fruit that comes is as good as is received in any year, but that calamity howlers have howled until prices for good fruit

are away below what they should be.

Around Anaheim an investigation of damage results in the statement that only 15% of the fruit has been rendered unmarketable by the cold.

Word comes from Anderson, Shasta county, unconfirmed, that the Shasta County Cured Fruit Association has succeeded in disposing of its prunes, 400 tons, for 4½ cents a pound, the best price ever received. Early in the season 2½ cents was the best price that could be secured.

Land Deals.

The 480-acre tract owned by John C. Kleinsasser, near Dinuba, has been sold to G. D. Tennyhill for \$115,200. It is level alfalfa land and was sold three years ago for only \$80 per acre.

The Yuba Farm Lands Investment Co. has purchased 1300 acres of the Ayer property near Smartsville, Yuba county.

The Miramonte Apple Land Co., of Los Angeles, has purchased a large tract of land in the mountains near Squaw Valley, Fresno county.

Rain Helps Stock.

The PACIFIC RURAL PRESS was favored with a call recently from A. B. Spooner, proprietor of the Pecho Ranch in San Luis Obispo county. Mr. Spooner states that the cattle were suffering from the scarcity of grass and a number have already perished. The rain that has visited the State is just in time to do an immense amount of good. From 1500 acres of barley last year, 7000 sacks were harvested, which is about up to the standard for that land. Like most stockmen, Mr. Spooner was of the opinion that a Union Stock Yards for San Francisco would do a lot of good to the stockmen if it could be gotten running nicely.

Field Crops.

The E. Clemeus Horst Co. has exhibited the merits of California hops and barley by taking the grand first prize for hops and the silver medal for the exhibit of barley at the Brewers' Exposition in the East recently. A good year is looked for in the hop industry this season, in acreage and yield.

Harry Harrington has been appointed general manager of the Nord ranch of the Harry Fraser company. He will have charge of both Butte and Mendocino ranches this year.

Carl D. Adams, factory superintendent of the San Joaquin Sugar Co. at Visalia, has arrived and is putting the plant in shape for its opening in June after two

REMEMBER, THE MUNCIE OIL ENGINE

is not a gasoline engine with an oil heating attachment on the outside, but an engine that injects the fuel oil directly into the cylinder without any previous heating of the oil whatsoever.

So simple that it requires only a few minutes to start, and a few seconds to stop. A cheap and reliable power that will run continuously with very little attention.

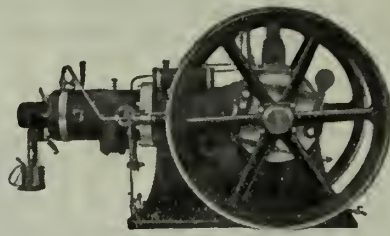
Especially adapted for general purposes, pumping plants, irrigation and all similar work.

Let us prove to you that the Muncie is one of the cheapest powers available for the farm. When writing, ask for a free copy of "Economical Irrigation by Pumping."

CALIFORNIA HYDRAULIC ENGINEERING & SUPPLY CO.,

70 Fremont St., San Francisco, Cal.

Agents for the American Centrifugal Pump.



Built in 10 to 100 Horsepower.

DO SOMETHING for Your Orange Groves—Now!

If trees have been injured by frost, you can offset the damage.

Apply Nitrogen at once to your Trees in the immediately available form of

Nitrate of Soda

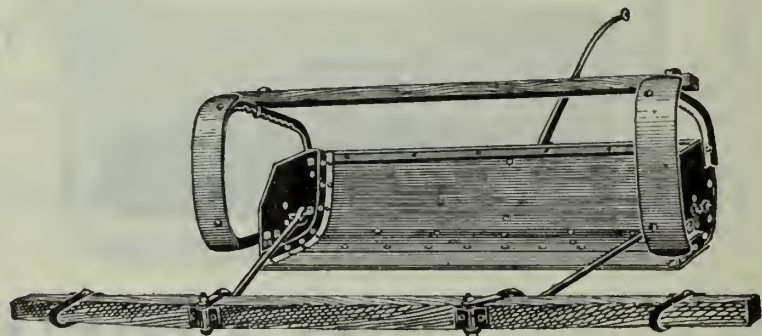
It will rejuvenate your trees and make them more hardy.

Send post card to-day for valuable booklet on "Cultivation of Citrus Fruits."

DR. WILLIAM S. MYERS, Director Propaganda
17 MADISON AVE., NEW YORK

No Branch Offices

Benicia Fresno Scraper



This scraper is designed for use on levee building, irrigating ditches, railroad work and leveling land, and, in fact, all construction work where a drag scraper can be used.

This scraper is made entirely of high-grade steel. In the quality of materials used, workmanship and finish is superior to any other scraper made.

Dirt can be carried any distance and dumped in bulk or scattered in layers from one to twelve inches deep simply by adjusting two tail nuts, no wrench being required.

This scraper is made in four sizes, to cut three, three and a half, four and five feet, and in two patterns, "A" and "B." The "A" pattern with shoes or wearing plates on the bottom of the bowl, and the "B" pattern without.

BENICIA IRON WORKS

Manufacturers

Factory: Benicia, Cal.

451 Brannan St., San Francisco, Cal.

California Stump Puller



— IS —

Powerful
Durable
Reliable

Gets All
the Roots

ONE HORSE WILL PULL THE BIGGEST STUMPS.

Given satisfactory service in California for 20 years.

Write for free book.

CALIFORNIA STUMP PULLER CO., 704 Bryant St., San Francisco.

years' idleness. About 6000 acres will be planted to beets.

A spineless cactus farm of 1000 acres is said to be in prospect under the Barstow ditch in Fresno county. The Fresno Spineless Cactus Nursery Co. is running the proposition.

The Farmers' Union warehouse at Tulare made a single shipment of 14 tons, or 147 sacks, of alfalfa seed to Los Angeles recently.

The cold weather that did some damage to California growers a month ago is also reported to have put many of the Mexican tomatoes that get into California and other parts of this country out of commission. Early tomatoes possibly would be a little more valuable than usual in California on that account.

A rice mill is being erected at Gridley, Butte county.

Creamery Prices.

Prices in some of the Kings county creameries in January were: Riverside Co-operative, 41½¢; Maple Grove, 41½¢; Swift & Co., Harwick, 40¢; Lake View of Corcoran, 8¢ above Los Angeles quotation; Corcoran, 40½¢ sour cream, and 44½¢ in sweet cream; Central of Lemoore and Riverdale, varying according to time. The aggregate amount paid for cream during the month to Kings county dairymen was about \$140,000.

Prices in Humboldt county were: Capitola, 40¢; Grizzly Bluff, 40¼¢; Central Creamery, 39½¢; Libby, McNeill & Libby, 39¼¢; Sunset, 40¢. Dairymen in Kernman, Fresno county, received 42 cents.

Creamery Notes.

Walter Ridgway, formerly connected with the Ridgway Company at Poplar, Tulare county, has bought into the Tipton Creamery and will be buttermaker there in the future.

H. W. Lowe, of San Francisco, has purchased a large interest in the condensary

FRUIT TREE BARGAINS

Nonpareil, Ne Plus Ultra, I.X.L., Drakes Seedlings, Texas Prolific, Hungarian, Silvers, Imperial, Goldendrop, Bartletts, Cherries, Walnuts, and Figs.

Special prices on application.

Order quickly.

A. J. GALLAWAY,
Healdsburg, Cal.

ASK US FOR
QUOTATIONS ON HAY
BEFORE PURCHASING
YOUR NEXT CAR.

Gotshall & Nourse
RIPON, CAL.



C. F. WIELAND,
Consulting Engineer,
706 Market St.,
San Francisco.

Concrete Silos, Sanitary Dairies, Creameries, Refrigerating Plants, Irrigation.

Orchard Brand Spraying Materials FOR PERFECT FRUIT

ORCHARD BRAND SPRAYING MATERIALS are chemical products of the highest quality, uniform in composition, of great covering capacity, made with a knowledge of orchard needs and certain to give desired results when used as we direct.

Orchard Brand Arsenate of Lead

is made to meet the needs of the Fruit Grower. The formula and process for making Orchard Brand Arsenate of Lead the high-class product that it is, have been perfected by years of study in laboratories and thousands of tests in orchards—No other Lead has back of it the long period of successful orchard experience of the "Orchard Brand."

Special Service to Pacific Coast Fruit Growers

Consult our experts and they will help you solve your orchard problems. Mr. S. W. Foster, for many years an Entomologist in the U. S. Department of Agriculture and well known in California for his successful work in combatting *Thrips*, *Codling Moth*, and other insect-pests, is our resident expert in charge. He has made a special study of orchard pests in the Western Fruit regions and understands the needs of the Western Fruit Grower and how to combat orchard pests under Western conditions.

Write for literature, describing Orchard Brand Sprays and order ORCHARD BRAND ARSENATE OF LEAD, which always gives 100 per cent efficiency.

General Chemical Co. of California, San Francisco

at Hughson and will henceforth take an active part in the management.

Carruthers Returns.

W. M. Carruthers, who is our regular live stock contributor, has just returned from an extensive trip East, during which time he purchased for California clients 217 head of pure-bred stock, including Holsteins, Jerseys, Short-horns, Herefords, Polled Angus, Shropshires, Southdowns, and Berkshire swine. A number of these are of the highest possible quality and will be seen at the State Fair and at the 1915 Exposition. This stock will arrive shortly and will be given further notice then. In all there were nine carloads.

Outside the State.

The Percheron Society of America has finished the schedule of special prizes for 1913. These prizes will be offered in 46 shows in the United States and eight shows in Canada. Cash premiums will total \$9,430 and other prizes and expenses will bring the expenditure up to \$17,000. Much of this money is to go to the American-bred horses. The California Fair occupies a prominent place in the list of fairs noted.

The prices at the Portland Union Stockyards for the week ending February 21 were about the same as the previous week, which means they were good. The market, however, was not as firm as it might be.

Federal orders regarding the dipping of Mexican cattle that have recently been issued will for a while probably retard shipments to a considerable extent.

Quotations for choice to extra dairy cows in the Chicago Live Stock World recently ran from \$70 to \$85. Ordinary class cows went at \$45 to \$52.

Cudahy on Hogs.

Patrick Cudahy, the Milwaukee packer, recently gave out the following: "I believe that hogs will sell at 9 cents or higher in April. * * * We are just finishing the four big packing months, which are generally months of light trade, yet we have accumulated little or nothing in the way of product. We are now just at the beginning of three months when receipts of hogs are gen-

erally light and trade big. I believe that we will see a tight situation in both lard and ribs between now and May 1." That looks good for the man that has hogs to sell.

Stanislaus Notes.

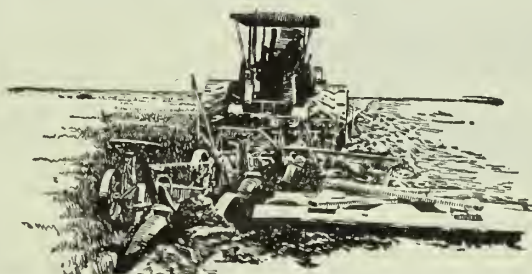
Carl Romie, of Soledad, Monterey county, paid a visit to a number of the Holstein dairies on the East Side recently to select the foundation stock for a pure-bred herd.

C. F. Kinnucan, of Turlock, is install-

ing four B-L-K milking machines for his 150-head dairy. Two men will be able to look after work that heretofore took five men.

Death of George P. Bellows.

Pacific Coast stockmen will learn with regret of the death of George P. Bellows, one of the leading auctioneers of the United States. Bellows met his death in an automobile accident recently. He had charge of many noted auctions in this State.



Save the Rainfall

The fewer the rainfalls, the more precious they are. You can't afford to waste them. You must save all the moisture. You must plow at the right time when there's danger of losing the moisture. When you want power you must have it, and you will with a



15-30 and 30-60

These tractors are always ready in a pinch—plenty of reserve power—plenty of pull—work night and day and never tire. You don't have to worry about them as you do with horses. Just keep them supplied with fuel and they'll do the job, and they burn cheap fuel, too.

They're just right for dry farming country, and will stand up under any strain. They are oil-cooled—no deposits in the radiators and cylinders—exceptionally strong frame—they're built for deep plowing.

Write for the story of the OilPull given as a dry farming prize. Also Data-Book No. 353 about this tractor. When you write, ask the name of our nearest dealer.



RUMELY PRODUCTS CO.

(Incorporated)

Power-Farming Machinery

San Francisco Los Angeles Portland Spokane La Porte, Ind. 481

The Home Circle.

Aunt Hannah's Signboard.

.....
: NO DRESSMAKING DONE HERE :
: LOOK OUT FOR THE DOG. :
.....

"There, Emilia!" exclaimed Aunt Hannah, bustling into the sitting room, "I guess that'll stop it. Nails ain't jest even," she lamented, holding out the above example of her mechanical skill, "but that sign's going to be put on the front gate. I'm going to spike it there myself. And, moreover, I'm jest goin' to toddle ev'ry thread of folderols in the house back home. I am."

"But, Aunt Hannah," Emilia broke in, laughing, "we have no dog."

"Wall, you've got a doghouse and a chain. I can fix 'em. They'll think the dog and bite and weak links are all ther. What do you think about it, Samuel?"

Aunt Hannah's face wore a very innocent, respectful expression, but she laid her signboard down that she might hold her sides to keep them from shaking. She had cornered Samuel.

"Well," that worthy drawled, "I'm sorry, but I don't just see how we will get along without Emilia's help."

"Git along!" indignantly burst out Aunt Hannah, "do something yourself. I want to be respectful to my niece's husband, but I've no scruples on account of bein' in yer own house, for it's hers; every board and nail and belonging. She earnt 'em."

Emilia looked up anxiously. Aunt Hannah and Samuel had occasional explosions; and, if the truth be told, she knew some of her energetic relative's moral thrusts were well aimed and did effective work.

"Now, don't you think Emilia had better go home with me for the summer?" Aunt Hannah continued, leisurely dropping into a chair, "and shet up this dressmaker's shop for one year? She's going jest the same, but I'd like to see if I cau squeeze a little human kndness out o' yer. She'll die if she tries to work any longer."

Samuel fidgeted. He did not want to waste energy in anger; besides, he knew Aunt Hannah would get the best of the argument if he did. He did not like to work; he had really come to believe he was not able.

"Yes," he at length answered, hesitatingly, "I think she better, but I don't see quite how she can."

"Wall, I do," and Aunt Hannah's eyes blazed.

"Expenses are pretty heavy, just now," Samuel objected.

"Have you lain awake nights thnkin' what you would do to help pay 'em?"

"I rather guess Emilia and I can pull through together, and she can have a resting spell at home."

"The same kind she's always had? Now, look here, Samuel Weldon, when the Lord made you, I'm purty sure he was in a hurry and forgot some of the seasonin's, especially the saleratus and pepper. You never could rise to an emergency and as for vim—"

"I'll think it over about Emilia," and Samuel left the room.

"Aunt Hannah," Emilia began, seriously, "I must work through the summer. Besides, I want Clarence to go to college, you know."

"Hmp! and while he is kicking football and singing college songs, you'll be j'inin' in the psalms up yender. Now, niece, do be reasonable. In the first place his college course is short. If he can't git his own education he won't be good for nothin' when you push him through. But he can, and will, when he once under-

stands the situation. He's got your blood in him. Now for objection No. 2."

"Work enough in the house for half the summer."

"Take it home."

"People must have their dresses."

"And you be trailin' yours over the golden streets, I s'pose."

"I should enjoy it above all things—to go home with you, but—" Her voice trembled and tears gathered in her eyes.

"And you are goin'. That ends it. Where is my signboard?"

"But you are not going to put it on the gate?"

"I am."

And she did. When the people first saw it they laughed and wondered. When they learned all it implied they declared Emilia Weldon should not make their dresses anyway, not if she remained at home, for they loved her. And Aunt Hannah had her way. Besides, her home was Emilia's old home, too.

How restful to be taken care of! But what made her so tired, Emilia often wondered. How delightful it was to sit in the daisied fields for hours, drinking in the sunshine, without a care! Many times as she sat dreaming, with a favorite book lying half closed in her lap, she would recall the numerous castles built in her girlhood days, as she roamed over these same daisied fields. She could not find them now. Sometimes she would smile as she thought how in some way they were always associated with bright Harry Gray. Then her conscience would blush, and she would look over her shoulder to the fine white house on the hill, and wonder if its owner's cup of happiness was too full to even remember her.

The days glided peacefully by. Aunt Hannah knew that after the strain was off reaction must come. But she began to lose faith in her fresh eggs and cream and Cherry hill air. Emilia drooped, though she tried to be cheery.

"We're goin' to the beach today," Aunt Hannah announced one morning, as old Dolly and the phaeton were led up to the door, and she appeared with a substantial luncheon.

Emilia's face colored for a moment with pleasure, then turned pale. She was silent most of the way. Her last visit to the sea was so long ago—on the day of her betrothal. What has become of all those happy dreams of memory? The blue waves with their puff of foam soon beckoned her on to an old favorite haunt—a retired place beneath a cliff. It was there she had promised to be Samuel Weldon's bride. How handsome he looked in his fresh uniform, with those gorgeous shoulder straps! Surely one brave and manly enough to fight for his country would fight, for her, life's battles! But alas! memory slipped from the present to the past. The waves went on singing from her waking dreams to those of sleep. And when Aunt Hannah came to throw a wrap over her, a happy smile rested on the woru features.

"Poor dear," she murmured; "brave little heart," with a quiver of the upper lip. "Her color is fairly good, and she's not very thin; quite plump; but where is the strength? I am just goin' to make Dr. Milo tell me the whole truth tomorrow mornin'; so there! Am glad we came down or that I thought of it."

The good old doctor shook his wise head as Aunt Hannah eagerly plied him with questions.

"Miss Hill," he said, "it is just like this. Mrs. Weldon has been doing—let me count how many women's work. She has brought up a family of children. To do that well is one woman's work. She has had all the care of the household work, and has done much of it herself, besides acknowledging the claims of society. That makes two women's work. She has carried on a sufficient amount of

dressmaking to equal two women's work. That makes it 15 years that she has been doing four women's work. And then we men grumble and wonder that a woman breaks down so easily, and wish they were stronger! But we physicians learn to detect symptoms of all kinds. She has had to do this without the aid of love and sympathy from the source that should never have failed. She is a lovely woman."

"But she won't die, will she?" Aunt Hannah broke in.

"I have great faith in her constitution, but—"

That night Aunt Hannah posted the following letter:

"Mr. Samuel Weldon:—Come and view your handiwork. If God put you into the world to mar souls with your cruelty, you can be proud of one result. But He didn't. You'd better come and see what a wreck you've made of the casket containing one whom He cares for."

"HANNAH HILL."

Harry and Mabel arrived first.

"It is all right, mother," Harry exclaimed after the greetings were over. "I have secured a position with Mr. Lane and that furnishes the money for my school, later. I rather think I am able to look out for myself," with a proud, manly air. "We are going to take care of you now. We've missed you awfully. Every pretty, cosy thing in the house just spoke right out loud, and told us what they had cost you. We didn't know before."

Then Mabel had her little confidences to tell when she and mamma were alone.



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"You know, mamma, I was earning that money just for my own extra finerles and pleasures. I have leave of absence for three months, and have been at home trying to fill a little of your place. And when Frank Holbrook heard it, he declared it was a generous, womanly thing to do. That he did not mean—to like—me very much—because he thought I was heartless; but that he did—not think so any more. And—" She held up a finger with a new ring, and hid her blushes on mamma's neck.

"So young," Mrs. Weldon murmured, returning her daughter's caresses. But of all possible suitors, Frank Holbrook was her choice.

"And it might never have happened," Mabel laughed, "if Aunt Hannah had not brought you here."

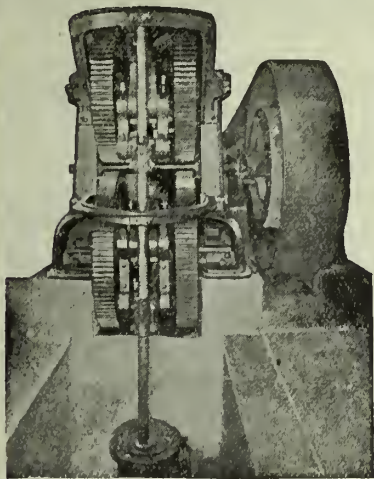
In the evening Mr. Weldon came. He, too, had a confession to make before his o'her boy should come.

"I guess, Emilia, it would have been hard enough for you to live with me, if I hau been a little kinder to you. I've been thinking it over. You are of a finer make than I. I can see it now. I have done considerable thnking since you have been away. I do not believe I shall make you furnish half the income any more, while I'm off spending money for pleasure, or playing lazy. And if the children need any more help, I guess I can do it. You have done your share."

Aunt Hannah accidentally overheard some of the conversation as she stepped to the door to announce supper.

"It looks as if the Lord had been good to put an extra patch of heart onto that

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REIERSON MACHINERY CO., MANFRS., PORTLAND, OREGON

organ. Be thankful for small favors and continue askin' for larger ones."

"Circulation better, pulse better, appetite better, everything better," the doctor joyfully announced a week later. "Medicine has something to help it along now."

"Yes," Aunt Hannah declared, "a burden of care, an avalanche of future work have been removed. She has a whole year in which to rest, a lifetime, they all declare."

Aunt Hannah's signboard is preserved as a sacred family relic.—Farm and Home.

The Art of Breathing.

Editor RURAL PRESS: Since subscribing to your farm journal I have become intensely interested through reading the columns of print and value it very much. Was particularly enthused over last issue, especially the article in the Home Circle department upon "The Art of Breathing," which was well worth the space devoted to it, but I think the outline was rather brief, as I believe too much stress cannot be laid upon breathing pure, fresh air—the value of which I have proven many times over since giving up office work in San Francisco and taking up agriculture for a livelihood.

A few points here on health building may not be amiss. Our spring season is near at hand, at which time a great many people are troubled with colds. I might state how I have cured and keep from taking cold; that may be of benefit to others. It was during the spring of 1912 while staying at a private boarding house where the food was exceedingly good and tasteful to one's palate, and of which I made a pig of myself, that I took a severe cold. Was advised to feed the cold, keep on eating heartily, and take some more medicine, and I would be all right. Did those very things and nearly died from the effects, before I decided to try some other method—the simple nature cure.

I started in by cutting out my breakfast, then to take cold baths (O, how I shudder when I think of the first one), also went through with ten minutes of light and simple exercises night and morning for the purpose of strengthening the muscles of my stomach and abdomen, etc. My health began to improve at once. When I got used to going without my breakfast, I started on a fast of 24 hours and later increased it to 48 hours. Since, I have fasted as long as seven days and worked the entire week without much discomfort. But short fasts are far better, I believe, as one is apt to overeat after a long fast and thereby spoil all the good effects.

The cold bath is a great tonic; in fact, one of the best tonics when combined with warm baths, when taken regularly. Cold baths should never be taken by anyone so cold that you do not recuperate with a feeling of warmth after a good brisk friction rub-down. I followed the deep breathing exercise, as mentioned in your issue of February 15th, and took plenty of time for my meals.

You may be a very busy person, but you will find out that you will accomplish fully as much, in fact more, if you take 10 or 15 minutes for time for each meal than you do when you hurry through with it and rush to work. If you must hurry, eat less, masticate more. When you rush your meal it takes more food to satisfy hunger and one is apt to overeat, thus bringing on indigestion. This if continued long will result in some form of stomach and bowel trouble, which I have experienced, and it takes a long time to effect a cure.

Also form the habit of drinking plenty of pure water during the day (between meals), which helps as an internal bath, for I think cleanliness inside as well as outside, is next to Godliness.

The points herein mentioned may seem

too simple, and some of them to take up too much time, but should you try, not only one, but all the methods, with enthusiastic earnestness of will, am sure you will derive great benefit—pure blood, better health, with less doctor bills, hence more wealth.

M. E. POTTER.

Mt. View.

Perfect Man.

The perfectly proportioned man, according to U. S. Army standards, is described as follows:

Height, feet.	Weight, pounds.	Chest measure at expiration (inches).
5 4-12	128	32
5 5-12	130	32
5 6-12	132	32½
5 7-12	134	33
5 8-12	141	33½
5 9-12	148	33½
5 10-12	155	34
5 11-12	162	34½
6	163	34½
6 1-12	176	35½

English as She Is Murdered.

Our family once had for a neighbor an old lady whose original twists of the English language gave us many a side-splitting moment.

Once, when she had been cleaning house she informed us that she had "clim up and clum down" so much that she had "got so het up she hed to set a spell," and that meantime she had to run in "to do a mess a visitin'." While in the midst of this conversational "mess," our youngest hopeful overturned a kettle of soup that we had left too near the edge of the table, and the old lady gave us a disconcerting aftermath by crying out in her shrill voice, "Well, now you hev rose hell!"

Both True.

Jack—Why, your'e acting as if you'd like to be kissed.

Jessica—Why, that's not acting.

Jack—But you act as if you had been kissed before.

Jessica—Neither is that acting.—Yonkers Statesman.

Solved.

"Ma has solved the servant girl problem."

"That so? How?"

"She's decided to do the work herself."—Detroit Free Press.

Tied.

Son—Someone says, dad, that there's tide in the affairs of men which leads to fortune. What kind of tide is that?

Practical Father—Tied down to business.—Boston Transcript.

Failing.

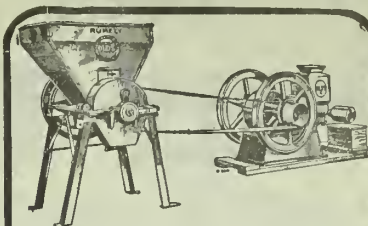
"Yes," said the old man, "I find my strength is failing somewhat. I used to walk around the block every morning, but lately I feel so tired when I get half way round I have to turn and come back."—Woman's Home Companion.

Polite Johnnie.

"What dirty hands you have, Johnnie," said the teacher. "What would you say if I came to school that way?"

"I wouldn't say nothin'," replied Johnnie. "I would be too polite."

Don't lean too much on others. Learn to think for yourself. Make your decisions, then do the work in hand the best way you can. If you have thought wrong, forgive yourself, and try to find where the weak spot was. Make everything a stepping stone to something higher.



Power Saves Feed Bills

Don't waste the feed. Get the full value from the grain you feed your stock—grind it—get all the beef and pork out of every bushel. Get a feed mill outfit. Here's a good one—

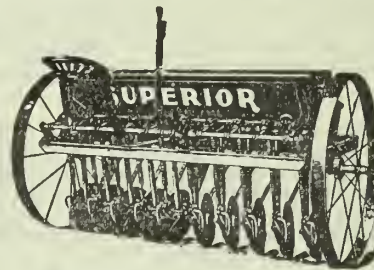
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We don't have to tell you about this engine. It's proved its worth. Thirty-five years of experience goes into every engine. It's built right—every part of the best material. You'll find a hundred uses for this engine. It will make money for you every day. Inquire about this engine—you can't go wrong on it. It's built for service and will save money for you every day that you own one.

The Rumely Feed Mill is the right mill to grind feed—made of the best materials—least number of parts—easily adjusted. Send for Data-Book No. 344, on the Rumely-Olds Engine and information about this feed mill. Ask the name of our nearest dealer.

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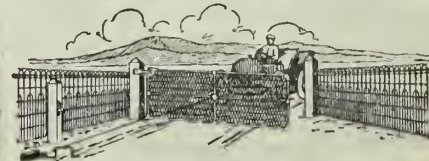
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Surplus and Undivided Profits \$5,000,000.00
Total \$11,000,000.00

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160 Eleventh St., San Francisco.

IN MARKETS.

San Francisco, Feb. 26, 1913.

(Unless otherwise noted, quotations represent prices paid to the growers.)

Cereals.

WHEAT.

The northern market has stiffened up a little in the last week, and the local market shows a correspondingly firmer tendency, though prices on most lines are not notably higher. The demand here is very light at the moment, though a little more movement is expected within the next week.

California Club	.....	\$157½ @ 1.60
Sonora	.....	Nominal
White Australian	.....	Nominal
Northern Club	.....	1.57½ @ 1.60
Northern Bluestem	.....	1.67½ @ 1.72½
Northern Red	.....	1.55 @ 1.72½

BARLEY.

The improved crop outlook has caused a much easier feeling, and there is some pressure to sell, while buyers are holding off almost entirely for the present. Choice feed is lower, and while many holders still ask \$1.35, it is hard to effect any sales at that figure.

Brewing and Shipping	.....	\$1.45 @ 1.50
Choice Feed, per ctl.	.....	1.30 @ 1.35
Common Feed	.....	Nominal

OATS.

The demand for seed oats is over, and there is not much movement of feed. Supplies are ample, and both red and white oats are lower.

Red Feed	.....	\$1.75 @ 1.85
Seed	.....	2.00 @ 2.10
Gray	.....	Nominal
White	.....	1.45 @ 1.50

CORN.

A good many samples of California corn have been shown here lately, but with Eastern corn plentiful and easy, they do not attract much attention. Offers of \$1.45 are reported. Eastern yellow has been marked down again, with few buyers willing to pay the top price.

Cal. Yellow	.....	\$1.45
Eastern Yellow	.....	\$1.45 @ 1.50
Eastern White	.....	Nominal
Kaffir	.....	1.50 @ 1.55
Egyptian	.....	1.70

RYE.

Considerable rye is offering at the range quoted, but the current demand is very small and buyers show little interest.

Rye, per ctl.	\$1.45 @ 1.50
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BEANS.

Nothing new has developed in the bean market, values standing practically the same as for several weeks past. The market is very quiet, with practically nothing changing hands locally, though a little movement is expected before long. More or less Eastern business is coming in all the time, but is entirely in small lots. Notwithstanding the lack of demand the market is very steady, with a fairly firm feeling in some lines, supplies being well out of first hands and rather closely held. Prices in the local market are quoted as follows:

Bayos, per ctl.	.....	\$3.25 @ 3.45
Blackeyes	.....	3.15 @ 3.25
Cranberry Beans	.....	4.70 @ 5.00
Horse Beans	.....	2.25 @ 2.35
Small Whites	.....	4.50 @ 4.65
Large Whites	.....	4.20 @ 4.35
Linus	.....	5.50 @ 5.60
Pea	.....	Nominal
Pink	.....	3.70 @ 3.90
Red Kidneys	.....	4.00 @ 4.25
Mexican Red	.....	4.00 @ 4.20

SEEDS.

Most lines are now rather quiet, and values stand as before on everything but hemp, which is a little lower.

Alfalfa	.....	15 @ 16 c
Broomcorn seed, per ton	.....	\$29.00 @ 30.00
Brown Mustard, per lb.	.....	3½ c
Canary	.....	5½ @ 6 c
Hemp	.....	3 @ 3½ c
Millet	.....	2½ @ 3 c
Timothy	.....	Nominal
Yellow Mustard	.....	Nominal

FLOUR.

There is nothing new in this market, values being steadily held at the former level, with a fair demand both locally and for shipment.

Cal. Family Extras	.....	\$5.60 @ 6.00
Bakers' Extras	.....	4.60 @ 5.20
Superfine	.....	3.90 @ 4.10
Oregon and Washington	.....	4.90

Hay and Feedstuffs.

HAY.

Shipments to this market have been a little lighter than for several weeks past, but local conditions show no improvement, the demand being quiet in all lines. Some difficulty is experienced in cleaning up the daily arrivals, and concessions are frequently made from the ruling prices. The only line showing any firmness is strictly fancy wheat or oat hay in small bales, of which hardly any is offered. This week's rain has done great good to the crop at points most in need of moisture, and in some districts will carry the crop for some time. Dealers say that the acreage will be large, and with normal rains from now on, look out for a heavy output. Supplies through the country are said to be sufficient for all probable needs.

No. 1 Wheat, or Wheat and Oat	.....	\$18.00 @ 20.00
do No. 2	.....	15.00 @ 18.00
Lower grades	.....	12.00 @ 14.50
Tame Oats	.....	15.00 @ 20.00
Wild Oats	.....	12.00 @ 16.50
Alfalfa	.....	10.50 @ 13.50
Stock Hay	.....	9.00 @ 10.00
Straw, per bale	.....	35 @ 75c

FEEDSTUFFS.

The general demand is quiet, and with stocks accumulating, values still show a downward tendency. Shorts and middlings, as well as cracked corn and rolled barley and oats, are lower.

Alfalfa Meal, per ton	.....	\$18.50 @ 19.00
Bran, per ton	.....	25.00 @ 26.00
Oilcake Meal	.....	39.00 @ 40.00
Cocoonut Cake or Meal	.....	Nominal
Cracked Corn	.....	33.00 @ 34.00
Middlings	.....	33.00 @ 34.00
Rollod Barley	.....	28.00 @ 29.00
Rollod Oats	.....	34.00 @ 35.00
Shorts	.....	28.00 @ 29.00

Garden Truck.

VEGETABLES.

Onions in salable condition are less plentiful, and values show more steadiness, choice lots being higher. Asparagus from the river districts is coming in rather freely, and values tend downward, though, even with frost-damaged lots coming in, the inside figure is better than a week ago. The first Alameda county peas appeared this week, and are bringing high prices, as there is practically nothing offered from other sources. Bay rhubarb is also firmly held at about the former price, offerings being only moderate. Offerings of celery have been excessive for several days, and the price has dropped sharply, but lettuce is higher, the surplus of southern stock being well cleaned up. Some egg plant and occasional lots of string beans are still arriving from Florida, and sell readily at stiff prices.

Onions: Yellow, ctl.	.....	50 @ 85c
Garlic, per lb.	.....	1¼ @ 2c
Tomatoes, per box	.....	\$1.50 @ 1.65
Cucumbers, per box	.....	3.00 @ 3.25
Cabbage, per ctl.	.....	40 @ 50c
Carrots, per sack	.....	50c
Cauliflower, per doz.	.....	30 @ 40c
Celery, crate	.....	1.50 @ 2.00
Rhubarb, lb.	.....	6 @ 12c
Mushrooms, box	.....	20 @ 25c
Artichokes, doz.	.....	75c @ 1.25
Sprouts, lb.	.....	6 @ 7c
Green Peppers, lb.	.....	20 @ 30c
Lettuce, crate	.....	1.25 @ 1.75
Eggplant, lb.	.....	25 @ 30c
Green Peas, lb.	.....	30 @ 40c
Asparagus, lb.	.....	20 @ 30c

POTATOES.

Potatoes are still offered at the same prices as for some time past, with large supplies and no very heavy demand either locally or for shipment. There is little to indicate any betterment in the near future, though the production this year is expected to be much lighter.

River Whites, ctl.	.....	35 @ 50c
Salinas, ctl.	.....	\$1.00 @ 1.25
Oregon, ctl.	.....	65 @ 1.00
Sweet Potatoes	.....	1.90 @ 2.00

Dairy Produce.

POULTRY.

Practically all lines of chickens have been marked up quite sharply, though Eastern stock is arriving in fair quantities. Arrivals of California chickens are still very small, and everything that has come in this week has found a good demand. Turkeys are quiet at the old figure, both supply and demand being light.

Large Broilers, per lb.	.....	26 @ 30 c
Small Broilers, per lb.	.....	26 @ 30 c
Fryers, per lb.	.....	24 @ 26 c
Hens, extra, per lb.	.....	16 @ 18 c
Hens, large, per lb.	.....	16 @ 18 c

Small Hens, per lb.	.....	16 @ 17 c
Old Roosters, per lb.	.....	10 @ 12 c
Young Roosters, per lb.	.....	20 @ 22 c
Squabs, per doz.	.....	\$3.00 @ 3.50
Geese, per pair.	.....	1.50 @ 2.00
Ducks, doz.	.....	4.00 @ 6.00
Turkeys, dressed	.....	22 @ 24 c

BUTTER.

Both grades of butter remain on practically the same level as last week, and the market is steady, with supplies about equal to current local needs.

Thurs.	Fri.	Sat.	Mon.	Tu.	Wed.
Extras	33½	34	—	34	34 33½
Firsts	32½	32½	—	32½	32½

EGGS.

The egg market remains at a low level, having dropped ¼c since last week. The wholesale trade is heavily supplied and finds some difficulty in disposing of the surplus, as there is not much demand from outside points. The low prices have caused a very heavy consuming demand, but the movement is hardly up to the production, and it is reported that some eggs are being put in storage.

Thurs.	Fri.	Sat.	Mon.	Tu.	Wed.
Extras	17½	17	—	17	17
Firsts	16½	16	—	16	16

Selected Pullets..16 15½ — 15½ 15½ 15½

CHEESE.

All lines are steady, the only quotable change being a decline of 1c in fancy flats.

Fancy California Flats, per lb.	.....	16½c
Firsts	.....	15 c
New Young Americas, fancy	.....	18 c
Monterey or Jack Cheese	.....	16 @ 16½c

Deciduous Fruits.

The demand for apples seems to be picking up a little, and there is quite a large movement locally, as well as a moderate shipping business. Supplies, however, remain very large, and there has been no improvement in prices. Efforts are being made by local dealers to work up a better consuming demand for this fruit.

Apples: Fancy Red, box	.....	75c @ 1.25
Red Pears	.....	40 @ 60c
Bellefluer	.....	65c @ 1.00
Newtown Pippins, 3½ to 4-tier	.....	85 1.35
Common	.....	40 @ 60c

Dried Fruits.

There has been little actual change in conditions, but there is a little more inquiry for some lines, and the local trade feels some encouragement regarding the near future. According to all precedent, there should be a very fair general movement within the next two months, and except on apples, values are steadily maintained. The only line which has been moving to any extent is prunes, for which there has been some demand for export as well as for shipment to the East and Middle West, but stocks have not been reduced to any great extent, and prices show no improvement. Raisins are not yet receiving much attention, but growers are unwilling to accept anything below the present figures, and prices are apparently as low as they are likely to go. Any activity in apricots or peaches would probably bring an advance, as there is no surplus in either line. Holders of apples are anxious to sell, but find little demand in any quarter, the surplus being heavy in the East as well as on the Coast. The New York Journal of Commerce says: "Wires received from the Coast reflect a stronger market there for California prunes, which is attributed to renewed export demand and some buying by Middle West distributors. Local jobbers still appear indifferent, as the demand from the retail trade continues slack. California raisins are weak and the tendency of prices is in buyers' favor. There is little or no demand at present for spot or forward shipment stock. The Coast market is nominal. Loose Muscatels receive little if any attention from the local trade, though prices are in their favor. Three crowns are said to be readily obtainable at 4½c and 2 crowns are reported weak at 3½c on the spot. Some business is being done in apricots on the spot here and for shipment from the Coast, and, as stocks in both positions appear to be in small compass, the market has a firm tone. Peaches are inactive, with prices somewhat nominal. Late quotations received from the Coast on prompt shipment stock f. o. b. steamer were on yellows 4½c for standard, 4¾c for choice, 5c for extra choice, 5½c for fancy, 6c for extra fancy, and 7½c for jumbo. Opening prices on 1913 crop California figs are made by Coast packers as follows: Cartons, No. 1

Small Ranches
Along line new O. & A. Electric Railway.
Regular trains running in March.

Truck Farms
Along line new O. & A. Electric Railway.
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Along line new O. & A. Electric Railway.
Regular trains running in March.

Country Homes
Along line new O. & A. Electric Railway.
Regular trains running in March.

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Along line new O. & A. Electric Railway.
Regular trains running in March.

Chicken Ranches
Along line new O. & A. Electric Railway.
Regular trains running in March.

All within commuting distance of Oakland, Berkeley, and San Francisco.

Thousands will have small farms and grow just what the Market demands.

Think of this.

San Francisco, Oakland, Alameda, Berkeley, Piedmont, Claremont, Melrose, Fitchburg, Richmond; in fact, all the bay cities for a

Market

One million people

At your door who do not produce anything, but who are

Consumers

That is the kind of land to own.

The Oakland & Antioch Electric Railway announce that they will begin the running of their trains on regular schedule next month (March, 1913) direct from the Key Route Mole to Lafayette, Walnut Creek, Concord—through the beautiful Mt. Diablo Country.

Thousands will make this beautiful country their future home and keep their positions in the city.

Thousands will farm small ranches and have this wonderful market within one hour's ride.

It's just what you want.

Just where you want it.

Take our advice.

If you want something that's right,

Go and see this country—

Go Now.

Information gladly furnished.

Address: R. N. BURGESS COMPANY,
Branch Office: 734 Market St.,
1538 Broadway, San Francisco, Cal.

Chicken lecture: You are cordially invited to come to a lecture on chicken raising at our office, 734 Market St., San Francisco, Monday, March 3rd, 8 P. M.

choice, 65c (10-ounce); No. 1 fancy (10-ounce), 70c; No. 12 choice (12-ounce), 60c, and No. 12 choice (36-ounce), \$1.75; bricks, No. 1 choice (10-ounce), 60c; No. 1 fancy (10-ounce), 65c; No. 10 choice (12-ounce), 50c; No. 12 choice (12-ounce), 55c; No. 12 choice (36-ounce), \$1.65; No. 8 choice (50-ounce), \$1.60; No. 6 choice (50-ounce), \$1.30; No. 6 choice (20-ounce), 52½c, and No. 4 choice (72-ounce), \$1.45; layers, 3-row, 57½c, and 4-row, 62½c. Bulk fruit is quoted at 3¾c for cooking, 4c for standard, 4½c for choice, 5c for fancy and 5½ for extra fancy. All above prices are f. o. b. Coast for September-October shipment.

Evap. Apples, per lb.	.....	3½ @ 5 c
Apricots	.....	9 @ 10 c
Figs: White	.....	3½ @ 4½ c
Black	.....	3 c
Calimyrna	.....	4 @ 5 c
Prunes: 4-size basis	.....	2½ @ 3½ c
(Premium: 1c for 40s-50s; 2c for 30s-40s.)	.....
Peaches	.....	4 @ 4½ c
Pears	.....	4 @ 7 c
Raisins—	.....
Loose Muscatels in sweatbox	.....	2¼ @ 2½ c
Thompson's Seedless	.....	4½ c
Seedless Sultanias	.....	3 @ 3½ c

Citrus Fruits.

The Eastern fruit auctions show a better feeling for citrus fruits, but the prices are about what they have been for several weeks. With the small shipments going forward the market is rapidly being cleaned up, when good fruit ought to command good prices again. At the New York auction on Monday, February 24, prices on navels averaged from \$1.10 up to \$2.95 per box; valencias sold for \$2.10, and tangerines brought around \$1 for half boxes. The same day at Boston, prices were higher for navels, the range being from \$1.60 up to \$3.40 per box. Other auction points showed prices ranging between these two quotations. Lenious are still bringing good prices and average from \$4.50 to \$5.50 per box. Shipments from southern California average a little better than 30 cars of oranges and 3 cars of lemons daily.

Florida is having a prosperous season

in the way of heavy shipments. So far over 5,000,000 boxes have been marketed, and by April 1 it is expected 7,500,000 boxes will have been sold, being the total of the crop. A large loss is being inflicted on the growers through decay in transit.

The local orange market shows considerable improvement, which may be attributed partly to an interruption of shipments, enabling local dealers to clean up their surplus. Fresh supplies are now arriving freely, but the advance in prices is well maintained and the local demand is better than before. Prices in other lines are unchanged, the demand in all lines being fairly strong.

Oranges, per box—	
Navel, good to fancy.....	\$ 2.50@ 3.50
Frosted	75@ 1.50
Tangerines	1.00@ 2.50
Grapefruit, seedless	1.50@ 3.50
Lemons: Fancy	6.50@ 7.00
Choice	5.00@ 6.00
Standard	3.50@ 4.00

Nuts, Honey, Hops, Etc.

NUTS.

Supplies of both almonds and walnuts are light and closely held, the only movement being in a small jobbing way. Values stand nominally as for some time past. Almonds are said to have suffered some damage from the recent frost, though the injury was not as great as might be expected.

Almonds—	
Nonpareils	17½c
I X L	16½c
Ne Plus Ultra.....	15½c
Drakes	12½c
Languedoc	11½c
Hardshells	8 c
Walnuts, 1912 crop—	
Softshell No. 1.....	@ 16½c
Hardshell No. 1.....	@ 15½c
No. 2	10½c
Budded	17 c

HONEY.

There has been considerable demand for white and water white grades of both comb and extracted, and comb is higher. Lower grades are quiet.

Comb, white	14 @ 16 c
Amber	11 @ 12 c
Dark	9 @ 10 c
Extracted, white	8 @ 10 c
Amber	6½ @ 7 c
Off Grades	5 @ 6 c

BEESWAX.

While little if any shipping business has been closed, there has been enough inquiry from the East to stiffen the views of local dealers, and quotations have been advanced sharply. Supplies here are limited.

Light	32 @ 33 c
Dark	26 @ 28 c

HOPS.

Most of the crop has been moved out of first hands, and much of it has gone into consumption. What remains is closely held within the range quoted, though there is little activity at the moment.

1912 crop	12½ @ 21 c
-----------------	------------

WOOL.

The spring clip is not yet on the market, and until it appears no trading is expected. Prices remain nominally as before.

Fall Clip:

Northern and free Mendocino	12 @ 14 c
Lambs	9 @ 13 c
San Joaquin and Southern	6 @ 10 c
Mohair	15 @ 28 c

HORSES.

Offerings in the local market have been rather heavier than conditions warranted, and with a tendency among buyers to hold off on account of adverse weather conditions, business has not been up to expectations. First-class heavy drafters still find a fairly ready demand at full values, but at the moment the lighter types will hardly bring the top figures. Increased offerings of all classes, including some very desirable stock, are expected in the near future, and it is believed that the demand will revive during the spring.

Heavy drafters, 1700 lbs. and over	\$300@350
Light Drafters, 1500 to 1650.....	250@285
Chunks, 1350 to 1500 lbs.....	200@250
Wagon Horses, 1250 to 1350.....	180@225
Delivery Horses, 1050 to 1250.....	125@150
Desirable Farm Mares.....	100@125

Live Stock.

While dressed meats have been rather quiet locally for the last few weeks, prices are advancing in sympathy with the live

stock market. Yearling veal, mutton, lamb and dressed hogs have all advanced sharply. Live calves and wethers have also been marked up a little, and cattle are very firm at the recent advance.

Steers: No. 1	7¼ @ 7½c
No. 2	6½ @ 7 c
Cows and Heifers: No. 1....	6¼ @ 6½c
No. 2	5½ @ 6 c
Bulls and Stags.....	2½ @ 4½c
Calves: Light	7¼ @ 7½c
Medium	6½ @ 7 c
Heavy	5½ @ 6 c
Hogs: Grain-fed, heavy.....	7¼ @ 7½c
150 to 250 lbs.....	7½ @ 7¾c
100 to 150 lbs.....	7¼ @ 7½c
Prime Wethers	5¾ @ 6¼c
Ewes	5 @ 5½c
Lambs	7 @ 7½c

DRESSED MEATS.

Steers	11¼ @ 11½c
Cows	10½ @ 11 c
Heifers	11 @ 11½c
Veal, large	10 @ 11 c
Small	12 @ 13 c
Yearlings	12 @ 12½c
Mutton: Wethers	10½ @ 11½c
Ewes	10 @ 10½c
Spring Lambs	13 @ 14 c
Dressed Hogs	12½ @ 13 c

HIDES.

Values are fairly well held, with moderate but steady demand in most lines.

Heavy Steers, over 56 lbs.	14 c
Medium	13½c
Light Steers, under 48 lbs.	12½ @ 13½c
Heavy Cows, over 50 lbs.	12½ @ 13½c
Light Cows, 30 to 50 lbs.	13½c
Kip	14½ @ 15½c
Veal	17 @ 18 c
Calf	17 @ 18 c
Dry—	
Dry Hides	23 @ 24 c
Dry Kip, 10 to 15.....	24 @ 25 c
Dry Veal, 5 to 10.....	29 c
Dry Calf, 7 down.....	29 c
Horse Hides—	
Salt: Large	\$2.25
Medium	1.75
Small	75c
Colts	25 @ 50c
Dry	75c @ 2.00
Sheep Skins—	
Long Wools	\$ 0.35 @ 1.25
Medium Wool, 6 to 9 mos.	60 @ 90c
Short Wool, 3 to 6 mos.	40 @ 60c
Lambs	35 @ 70c

PUBLISHER'S DEPARTMENT.

GOOD RAINS FOR PLANTERS.

Since our last issue generous rainfall has occurred in most all sections of the State, the precipitation being especially heavy in the southern part, where more than six inches fell in some sections. A few valleys lack moisture, but on the whole those who intend to plant trees have enough to get along with. As the season is drawing to a close it behooves every man to get busy with a nursery catalogue and order his trees or he may be too late and lose a whole year's time.

FORMER MANAGER VISITS US.

Edgar Rickard, who for several years was manager of the PACIFIC RURAL PRESS, returned this week from London, where he has lived for the past four years. Although a resident now of a foreign country and manager of a very prosperous mining journal, Mr. Rickard is finding his visit to California and meeting with hosts of friends in and around San Francisco a very enjoyable event. He stated to the writer that he was pleased to learn of the success of the RURAL PRESS and considered that the position this journal occupied with its more than 9000 subscribers to be impregnable in California.

HAD A SUCCESSFUL SEASON.

A letter from Tribble Bros., of Elk Grove, states that: "We have had a most prosperous season, and the PACIFIC RURAL PRESS has helped us clean up nearly all our stock."

ETTER'S STRAWBERRIES SATISFACTORY.

Many letters and cards are being received daily from our subscribers who have secured the Ettersburg strawberry plants. It seems that Mr. Etter in most cases more than made good in the number sent, as well as the condition of the plants. Certainly we never saw finer plants than those sent out. A letter from Mr. Etter states that in checking up the lists he finds that he has fourteen more packages to send, but to whom he does not know. He wants to fill every order,

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LAND FOR SALE.

Best paying apricot and prune orchard in lower Santa Clara valley (Hollister valley); 9½ acres orchard; fine location, edge of town; good house, barn, windmill and tank. \$3500; \$4000 cash, balance mortgage. **L. H. Day**, County Horticultural Commissioner, Hollister, Cal.

Los Molinos is the only section of California that has never had a drouth or damaging freeze.

We had water to waste last season, the driest in 25 years, when all the rest of the State was short or entirely burned out.

There is plenty of snow in the mountains right now to supply us with all the water we can use this year, even if it doesn't rain another drop.

We entirely escaped injury from the January freeze that destroyed the crop and wiped out hundreds of orange and lemon groves and southern and central California.

Not an orange tree was killed at Los Molinos, nor hardly an orange even slightly frosted.

This proves that Los Molinos, by reason of its water supply and soil, is not only the best alfalfa district in the state, but is the coming citrus fruit district of California.

This means land that is now selling for \$75 to \$200 an acre will soon be worth \$1000 to \$3000 per acre.

Orange development is just starting; 1500 acres to be planted within the next year or two.

We have had rain enough this winter to make feed—hundreds of acres of fine pasture which dairymen are using free and saving hay.

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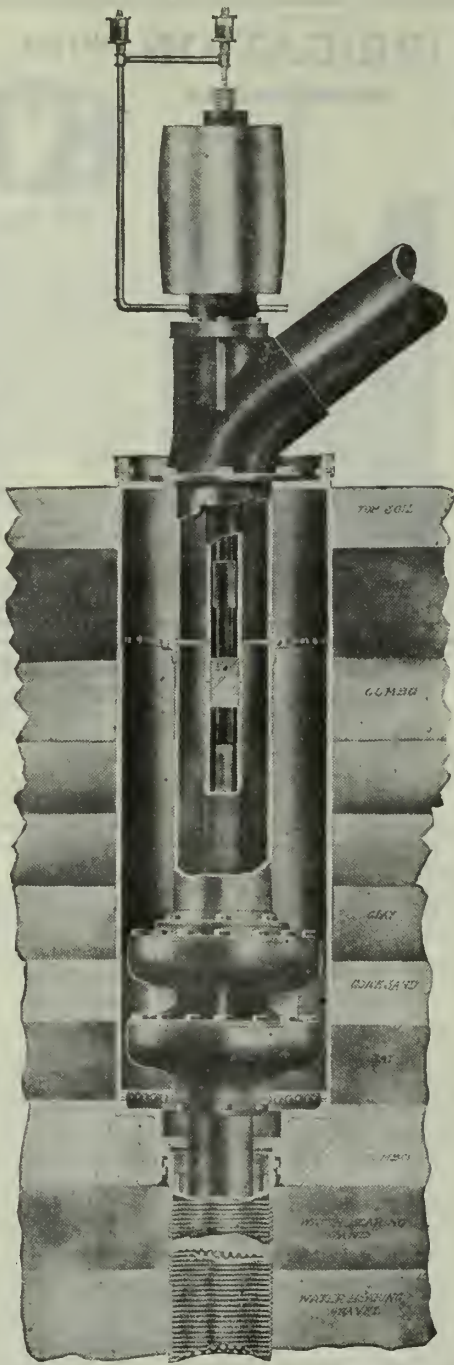
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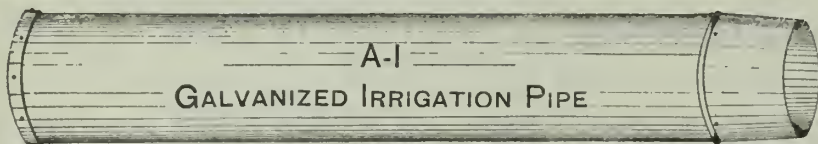
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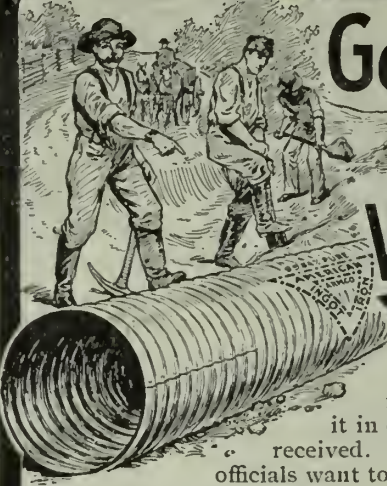
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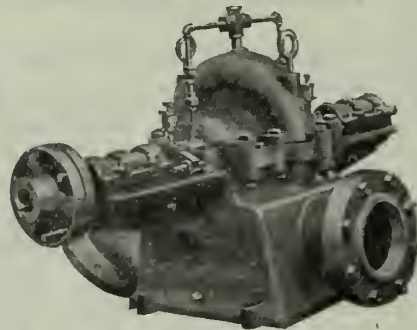
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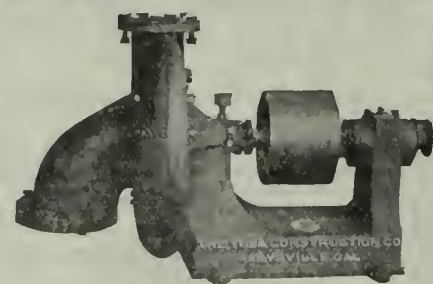
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THE PACIFIC RURAL PRESS

Vol. LXXXV. No. 10.

SAN FRANCISCO, SATURDAY, MARCH 8, 1913.

Forty-Third Year.

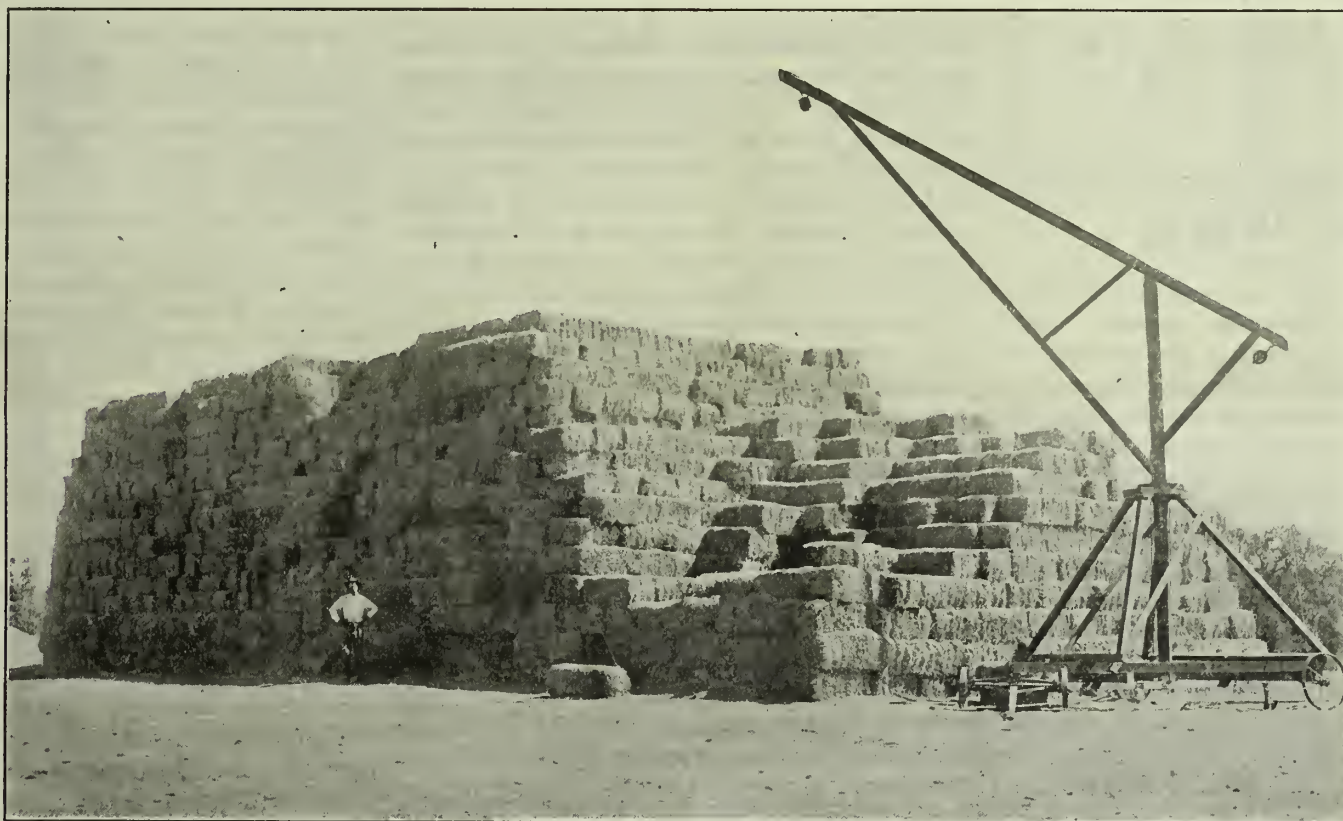
Getting the Most Out of Foxtail.

[Written for PACIFIC RURAL PRESS by PAUL PARKER.]

A forage plant not appreciated by half as it should be, is meadow foxtail. Much of the injury caused by this grass, when the truth is known, brings us face to face with gross ignorance or carelessness on the part of the farmer. For when handled properly and opportunely, foxtail makes an excellent feed in which there is little or no danger. "Treat foxtail right," says a stockman who has had years of experience with it, "and it will do the same by you." Most of the trouble lies in the farmer permitting the foxtail to get dry and harsh before letting the stock eat it, and it is then that the sharp beards enter the ears, eyes,

standing up to cling to the stock's head as they browse through them.

Foxtail in Alfalfa.—The amount of foxtail is increasing each year as more land is put under irrigation. Often in fields where the showing of foxtail has been scant, after water is put on, it comes up abundantly. This is especially noticeable on alfalfa land; so much so that in some sections the first cutting is known as the "foxtail crop," and the farmers are confronted with the problem of handling it to the best advantage. The manner in which it is to be fed usually regulates the handling in the field. Where the farmer has no silo or cutting machine, there's the rub; to get any benefit from the alfalfa, he must wait until it matures, but in the meantime he must be on his guard that the foxtail does not get dry and harsh. When such is the case, some farmers, after mowing, allow the hay to lie out a little longer than usual, so that



Stack of 1500 Tons Clean Alfalfa Hay at Maywood Colony, Set Up With Schmeiser's Derrick.

nose or throat. On the other hand, we find a few who go to the other extreme—feed it when immature and washy. While in this condition, foxtail has practically no feeding value, and any sort of dry hay will do the stock more good.

Between the two extremes, just at maturity, is the seasonable time to get results from foxtail. Successful feeders aim to stock it when the hair-like processes or beards first protrude out of the seed coat and the seed itself is still in the milk. But sometimes, when foxtail is reaching maturity, or when waiting for the development of some backward portion of a field, as where there is high and low land, a sudden hot spell will quickly ripen it. When thus confronted, the experienced farmer heavily stocks the fields, overstocks if necessary, in order to get the most out of the feed before the seeds commence dropping out of the heads.

But the danger of the dry beards is not the only cause for hurrying. there is another equally important; as soon as the leaves take on a yellowish tinge and the heads droop rapidly, then does the plant lose its substance. Some farmers have another method of handling foxtail when it ripens on them quickly; they will not let their stock on it until after it has been cut with a mower. The advantages are two-fold: the feeding values of the plant are longer retained and the beards are not

the foxtail will lose some of its harshness. They then mix it with hay that has no foxtail.

There is always danger, however, of leaving the hay out too long, so that it bleaches out and gets a musty, earthy smell that is particularly distasteful to cattle. Also, this prevents the second crop from coming up as it should. Another method, where the alfalfa field is old and the ground hard, is to stock it, have the foxtail and alfalfa eaten off as quickly as possible, in order that the second crop can be on its way.

But where the foxtail has been allowed to ripen, and is plentiful in the alfalfa hay, there are several ways of utilizing it to good advantage. First, if there is not much of it or the farmer ships many cattle, it can be fed to the stock the last few days before they are shipped to market, as they will be butchered before any evil results can happen. Second, feeding it cut to stock that are being finished for the shambles. The hay is cut very fine with a machine, sprinkled with brine until soft and then mixed into it crushed barley or its equivalent, such as cottonseed meal, soya bean meal, and the like. This makes a very cheap fattening ration, and is being used extensively by feeders. Not over two pounds of crushed barley are used at first in the mixture, but this

(Continued on Page 296.)

Pacific Rural Press

Issued Every Week at 420 Market Street, San Francisco.

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FRANK HONEYWELL - - - - - Manager
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D. J. WHITNEY - - - - - Associate Editor

CALIFORNIA WEATHER RECORD.

The following rainfall and temperature record is furnished the PACIFIC RURAL PRESS by the United States Department of Agriculture Weather Bureau, at San Francisco, for the week ending at 5 p.m., Mar. 4, 1913.

Stations.	Rainfall Data.			Temperature Data.	
	Past Week.	Seasonal to Date.	Normal to Date.	Maximum.	Minimum.
Eureka .....	.25	25.79	32.54	58	32
Red Bluff .....	.02	13.64	18.10	66	32
Sacramento .....	.00	5.50	14.32	68	34
San Francisco .....	.00	9.25	16.85	66	42
San Jose .....	.00	4.02	12.12	68	30
Fresno	T	4.24	6.69	70	36
Independence .....	.00	3.07	6.54	56	14
San Luis Obispo .....	.00	6.21	14.60	72	38
Los Angeles .....	.01	12.11	11.39	78	42
San Diego .....	.14	5.31	7.41	72	42

The Week.

The clouds have been exceedingly flirtatious this week, and the "probably showers," which has been the best the Weather Bureau could do for us, have skulked in the corners of even ordinary sized ranches, so that owners have had only to be over into the next field to keep dry. When men who earnestly desire to get wet through are so easily thwarted of their purposes, there must be something the matter with the year. Several things, however, are comforting: Southern California is content; the San Joaquin valley irrigators are rejoicing in the assurance from Porterville that there is more snow on the watersheds of the Sierra streams than at this date for three years past and that foothill pastures are now better than for several seasons. Except on the valley plains, too, there is the local declaration that nothing is suffering, and that the soil has ample moisture for present purposes. And that is about the way it has to be left this week.

Development enterprises are still cropping out in large numbers and in all styles. One of the most sensational is that credited to a visiting Hollander who was reported in the city papers to be seeking a place where the "Dutch could take Holland" anew and "besides engaging in agriculture, establish certain manufactures of typically Holland wares, and that a branch of a Holland banking firm will be established to facilitate the interchange of commercial credits between Holland interests in this country and Antwerp." It was surely a scheme of much picturesqueness and the design of it is apparently to be credited to the creative genius of the reporter—if the later statement that the Dutch speculator was simply trying to turn a big dollar by getting possession of land to sell to the Japanese, is to be believed. There is some comfort in the thought that there are perhaps as many sly men trying to buy land as to sell it, and that our land dealing is quite as much an exercise in diamond-cutting as a piscatory quest for suckers. At any rate if all

adds to the interest in living, and there is nothing dull or commonplace about it, and whether the event be the uncovering of a bunko foreigner or the planting of 135 acres of fruit trees in a single day, as our friend, W. S. Guilford, is reported to have done with 30 men last week at Orland, there is excitement enough to keep a man awake on his watch in the development line.

The Western View-Point.

We are earnestly delighted with the start which the new national administration is making this week from the inauguration post at Washington, and what particularly pleases us is that the Western point of view will have full opportunity to project itself upon national attention. We do not refer particularly to the installation of William Jennings Bryan as Secretary of State, although we like him well enough and there can be no doubt that he can enrobe any governmental proposition which may arise with the gorgeous hues of the sunset. He will, however, have most to do with the mollification of Mexico, the tourniqueting of the Turk, and similar matters of trifling agricultural import. What impresses us as of deeper significance is that the treatment of questions of supreme national importance, to wit: those that arise in the Departments of Agriculture and of the Interior, will not be measured by the yard sticks in use around Cape Cod and on the Wabash. The new Secretary of Agriculture, Mr. Houston, comes from long life and experience in public affairs in Texas and Missouri where there is a considerable stretch of distance to any horizon, and he is perhaps the most fashionable of all the cabinet furniture, because he is a "professor" and therefore an advisor in President Wilson's own class and strictly up to date, for government by professors is the newest thing on earth and just anterior to government by suffragettes apparently. These, however, are questions for the sociologist, and not for us. We are naturally pleased most by the choice of Franklin K. Lane of California for Secretary of the Interior. Mr. Lane is a California product and has always reflected credit upon the producer. We remember him away back in the eighties during his college days in the University of California, how independently and yet companionably he held himself, how he mastered the problems of making way for himself without crowding others—thus disclosing early the native traits and powers of fair acquisition which everyone recognizes as contributory to the distinguished public service which he has rendered during his career on the Interstate Commerce Commission. The whole West should rejoice that the Department of the Interior, which is so full of Western problems, is to be administered by Mr. Lane, and this is equivalent to saying that the whole country should rejoice also, because it is clear that Western problems, when settled aright, are not for the West alone, but for the whole country.

What Is a Western Problem?

But some reader asks: "What do you mean by claiming that there are Western problems and then admitting that they are problems for the whole country?" We thank you for the interruption; it is not so much for geographical situation of a problem which we would insist, as for a western point of view of a problem. We would be quite willing to argue that the Western point of view of a problem situated anywhere in the country would be a most important contribution to a true national view of such a problem, because, talent and training being equal, the Western man has a habit of thought, a breadth of grasp and an intellectual perspective which are invaluable in

the understanding of problems of the industrial class, if of no other. The Eastern man in such a matter may be as good a mariner, according to all rules of technique, but he sails a narrower sea: it takes the ocean to make a sailor. But let us write more concretely and point our view by reference to a pending problem environed in the West, but most national in its scope and in the effects of its wise solution. There are most serious issues arising concerning the administration of the national irrigation law of 1902, under which, up to January 1, 1911, about sixty million dollars had been expended, which is said to be less than one-half the amount of money necessary to complete the projects already entered upon. It was estimated in 1906 that the amount of money returned to the fund by settlers would be eight and one-half millions in 1910, whereas the amount they paid in up to that date was a little more than one million dollars. For this reason the fund does not revolve as anticipated and the completion of the works is either indefinitely postponed or must be met by additional investment of public money or public credit in some way. Some one has kindly sent us a copy of a fierce arraignment of the Reclamation Service by Francis G. Tracy of New Mexico, printed as Senate Document No. 869 by request of Senator Works of California. We do not undertake either to approve or to refute the claims made by Mr. Tracy, but simply cite it as a state of things involving a Western problem of national import, which is capable of right solution only from a Western point of view. Mr. Tracy's solution is this:

"Clean house thoroughly, beginning at the top. Reorganize on a business basis and take administration away from the engineers. Create an administrative board. Have it consist wholly of practical Western men—partly engineers, partly business men—and have its headquarters in the West. Let it handle all business matters, remove and appoint all engineers, hear and pass upon all grievances. Extend the time of payment of building charges to 20 years, and where undue cost has been incurred for unavoidable reasons, wipe it out.

"Inculcate in the service the idea of healthy rivalry and healthy co-operation with private enterprise and that a prosperous and contented permanent settler is the true test of success for either; not the number of times the land has been re-sold to a stranger at an advance in price before or after water has been delivered, and especially before actual results have established values to replace fictitious expectations. Or else turn administration and protection of the interests to State control."

State or National Conservation.

The foregoing quotation pumps the whole problem into the seething cauldron of controversy as to whether National conservation or State conservation plus private enterprise shall be the constituted conservators of public interests, and here again is a problem in the settlement of which the Western point of view must be duly regarded. If it is wholly disregarded, such questions will be determined from a distant and ultra-academic point of view which will retard the development of the West and close to the rising generation the avenue for profitable use of capital, thought and enterprising action which the last two generations have thronged in the Western movement for nation-building. There is surely a way to hold the field, which is a national heritage, open to the coming generation and still enforce national conservation to a desirable extent. The West is being built up by private and by State enterprise. Private or corporate irrigation enterprises are the ones upon

which production is being profitably conducted—not only in the past, but at present, and such enterprises have superior outlook to government projects, because the land is better, the local climates wider in their adaptations and the development cost is less per acre than in the grand and difficult enterprises which the government has undertaken and which were in many cases beyond private enterprise because of their difficulty and cost. There is room in the West for all good enterprises, both public and private, and we would no more exclude one than preclude the other. For this reason we are right up on the top rail of the fence during the issue which is being waged between private enterprise and public conservation. "Go it, husband!" "Go it, bear!" was the disinterested cry of the thorough sports-woman, but if either should take unfair advantage of the other, no doubt either hair or fur would fly, as the case might be. Therefore we hold that to order the future according to theoretical conceptions of those remote, who are by that very fact unacquainted with the whole truth and unmoved by the spirit which is shaping the up-building of the West, would be a national misfortune. Government enterprise should be designed with due regard to conditions prevailing and should be administered in the light of sound business teachings. Neither conditions in design and construction nor conditions of practicability in business transaction can be fully understood by those who have not lived the local life which is to be ministered unto or to minister. Therefore, again we are gratified that the host of Western problems, of which we have only cited one, is to be attacked henceforward under the eye of a man who has the Western point of view and is at the same time a citizen of the whole country. Secretary Lane of the Department of the Interior.

Private Enterprises May Need Regulation.

The sharp arraignment of the Reclamation Service by Mr. Tracy, to which we have referred, is in error in imparting the impression that hardships and disappointments in irrigation are confined to those who are under the government dispensation of water. While it may be perfectly true that "private enterprise in irrigation, as in all lines, has built and is today building up this great West," rather more emphasis should be placed upon inadequate or over-expensive service by private enterprises. Mr. Tracy says, however, that he does not deal with examples of failure of private enterprises "which have occurred and will occur again and again, and some of them have been stupendous," because the public does not assume the loss, etc. But there is something which endures longer than a failure, and that is a service which is not satisfactory and which in the interest of many users of water should be made satisfactory if possible. It is fortunate that the California Railroad Commission, which under its enlarged powers becomes the regulator of everything that runs, whether it be railway trains or irrigation water, has undertaken inquiry into the operation of water companies in Merced county against which complaints have been filed. The water users claim that the companies' ditch service is worthless after the middle of the summer and that they are compelled to pay for water that they do not get and that it is not to be had under the present irrigation systems. The water users would force the companies to build storage reservoirs. In addition to this series of complaints, the Commission will pursue an investigation of water rates charged to colonists by these companies. This is an investigation eminently fit to be made. Everyone should know whether private companies are obliged to do anything or not to furnish water

when crops need it or whether they are authorized to collect annual charges and only serve water when it will naturally run down hill. Merced county is not the only county where this question is vital. It is very clear to us that government irrigation enterprises are not the only ones which need arraignment for financial distress of those dependent upon them. We glory in private enterprise, but when a private enterprise assumes a public function it must discharge that duty adequately and for a reasonable compensation. It is gratifying to know that things are moving along that line.

Queries and Replies.

Querists must submit full names and addresses.

Identification of Apples.

To the Editor: I have an old apple orchard of some twelve or thirteen varieties, and would like to have two or three of the best varieties positively identified, so that I can order these kinds from the nursery for next year's planting. If I send samples of them, will you identify them, or if not, can you tell me who would do it for me?—H. L., San Diego.

It is difficult to have this done locally, because many old orchards were planted with large collections of varieties, most of which did not prove of commercial account, and our California nurserymen stopped propagating them. Some of the varieties may still be of value for local use or sale, but no Californian known to us makes a specialty of the identification to the extent of recognizing varieties far beyond the range of commercial planting. The best way to get apples identified is to send specimens to the pomologist of the United States Department of Agriculture, Washington, D. C. They have in Washington a full collection of models by which they are able to recognize varieties very accurately. We have no such collection in California at present.

If you greatly desire to have a few trees of exactly the varieties which you are now growing, you run some risk of mistake in ordering by name, but if you make some root grafts by taking a piece of the smaller roots of the tree, which you can dig out, say about the size of a pencil, and graft scions upon them, you can secure root grafts for planting in nursery this year and in that way be sure to have trees of exactly the same kind. Root grafts can be made now, placed in sand which is kept moist and not wet, planted out as soon as the ground warms up, and you will get immediate and very satisfactory growth in that way.

Growing Lentils.

To the Editor: Please give me some information regarding the planting and raising of lentils. Can they be grown in the Sacramento valley in the vicinity of Colusa, and at a profit?—W. F., Colusa.

Lentils are as easily grown in California as common peas, and will do well as a field crop if started during the rainy season, as they are hardy enough to survive our ordinary valley frosts. We see no reason why they should not do well in the vicinity of Colusa. With respect to lentils, it may be said that excellent as these legumes are for many purposes, they do not seem to be well known to American consumers, and therefore the amount to be grown is limited, until you know who will buy larger quantities of them at a good price.

California Beans.

To the Editor: I am looking about for a good field bean to grow in my orchard. There is a large red kidney bean shipped from your State. Please advise if this is a good yielder, and where

I can get a little seed for an experiment plot? Do you also grow a large white bean?—J. F., Lovington, Va.

Although we are growing about \$6,000,000 worth of beans in California for shipment to the Eastern States, we are not growing any particular new variety. They are varieties of which you can get seed from the seed dealers, and it will be necessary for you to determine by experience whether any of the beans available are satisfactory under your conditions. Our conditions are so different that the results would not be properly suggestive to you as to what kind you should rely upon.

Pears on Quince.

To the Editor: I saw some time ago a report of some French experiments in grafting the pear onto quince root. The report said the fruit produced was much larger than on any other root. Do you know if the Mission pear is blight-resistant? How near to water is it safe to plant apple trees?—T. H., Lordsburg.

Most of our common pears will take readily when grafted on the quince, but the quince transforms them into dwarfed trees. Such trees do produce, with proper care, very fine fruit. The remark about their being better than on standard trees refers, however, to other climates than ours, for California grows just as large pears on standard trees as can possibly be grown, while where conditions are harder the higher culture of the dwarf tree and the protection which it requires from climatic hardship, gives the dwarf tree the advantage. You can get pears on quince roots from most of our California nurseries.

We do not know whether the Mission pear is blight resistant. There are a number of Mission pears, none of which are largely propagated. Probably you refer to a pear from the San Gabriel Mission which is not widely known throughout the State.

We should want at least four or five feet of good soil about ground-water for apples. Pears will endure ground-water nearer the surface.

Stick-tight Almonds.

To the Editor: I have leased seven acres of bearing almond trees which have the appearance of being reasonably well cared for. I notice a few trees that still have almonds on ("stick-tights"). What is the cause and remedy? The soil is sandy loam, about 14 feet deep, then 6 inches of hardpan, and below that sand.—E. S., Lodi.

The occurrence of stick-tights is generally due to lack of moisture and thrifty growth, although some trees may be weak from some other cause and therefore deficient in sap-flow, which manifests itself in that way. Single nuts may also fall into that condition of malnutrition. We know no remedy except to keep the trees in good thrift by cultivation or by the use of irrigation if necessary. You certainly should have good trees on such soil which you describe.

Summer Starting of Alfalfa.

To the Editor: What season of the year would you recommend to sow alfalfa in the Escalon district? Can it be sowed in summer and successfully started with irrigation? If not, what is the latest time advisable to sow in spring?—D. R. P., Ellsworth.

You can sow during the next two months with the hope of getting it up by rainfall. Summer starting has often been mentioned, but not yet demonstrated to be satisfactory. We should like to hear from any reader who can commend the method. Deep soaking by irrigation and disking in the seed when the surface pulverizes well may bring you a stand without wetting the surface again until the plants are up well. If everything goes well it may be a great strike, but we have not yet confidence enough in the method to commend it.

The Place of Lime in Soils.

Two big things can be said about lime. One is that it is outside of the great trio of fertilizing elements, nitrogen, phosphorus and potash. The second fact that it is nevertheless a very important element in soils, of value as a plant food directly, for the very beneficial effect it has on the soil and for a very great influence in making the three main plant foods more available. In fact, in certain particulars the part of lime in soils is more important than any of the three other elements, and it is becoming ever more appreciated and more used throughout the country.

In California lime for soils is just beginning to be used at all generally and the demand for it is increasing with great rapidity as its value is being appreciated.

Its Different Forms.—Lime is the easiest of all plant foods to talk of, for it is something with which everyone is familiar, which can hardly be said of the other plant foods. It is found in nature as limestone and as marble, which latter is the same thing as limestone, but in different form. As burned lime it is used in making plaster, whitewash and for numerous other purposes.

When water is applied, or the burned lime is exposed for a short time to the air, it gathers water to itself and so gains in weight, losing some of its caustic or burning qualities.

Left long exposed to the air a portion of the air combines with it, driving off the moisture that first united with it, and it loses still more of its caustic qualities, becoming still heavier than when water slacked. When thus air slacked it is in exactly the same form as when taken from the earth as limestone, save that it is a powder, not a rock. The burning drives off a portion of that limestone which becomes mixed with the rest of the air, and after the burned lime is exposed to the air that gas comes back where it was at first.

Still another form of lime in common use is gypsum, or land plaster. This, however, is an entirely different form of lime. There is much less of the basic element, calcium, than in any of the other forms, and besides there is sulphuric acid combined with it and water, which is not found in either the burned lime or the air slacked lime.

Place in Soils.—Lime, taking the world over, is more abundant than any of the other foods in soils. Some whole sections are practically built on limestone formations, and by the same token these are always very rich sections too. Through other normal soils the lime is found usually in fair quality and the larger part is in practically the same form as air slacked lime.

This is one of the fundamental differences between lime and potash in soils. Nearly all the potash is so combined and locked up with the soil particles that the plants cannot get at it and water will not wash it out except with difficulty. The greater part of the lime, the business portion, is in a form where it is all doing service possible, where the water can get at it, dissolve it and wash it out. That fact gives us immediately a hint as to what soils will need lime, what methods of handling are likely to be best, or worst. Any soils in rainy climates, where lots of water continually seeps through are almost sure to have most of the lime washed out. Soils that are water logged or always wet are likely to be of similar nature, like the tule lands or peat lands of river bottoms, and finally soils to which water in big excess of plant needs is applied only to pass off into the drainage are rather sure also to have much of the lime, and the best part of the lime, washed out and so become impoverished.

California.—The relation of rainfall to the lime in soils explains immediately why California soils ordinarily are rich. And for the same reason anywhere that the rainfall is scant and irrigation necessary or good, the soils are likely to be similar to those of California. This holds true in most of Australia, South Africa, Northern Africa, The Mediterranean countries, Western Asia, most of the western third of the United States, and a few other districts.

California soils are not lime soils in the sense of being on a limestone formation as is the blue-grass country in Kentucky, parts of England and

France and so on. California soils normally, however, are very rich in lime in all except the rainy districts from the fact that the normal rainfall has never been sufficient to wash out the lime that was in the original rocks from which the soils were formed. The rain, if it did anything, freed part of the lime combined in ways to make it unavailable and put it into the form of carbonate, or air slacked lime. It was for mankind, in light soils especially, to put on the surplus water, to wash out the lime and other plant foods and to deplete the soil of its richness.

Action.—To fully appreciate the need of lime a person must understand its action. It is often said that lime is not a plant food, but a soil corrective, that its good effect came from the improved condition of the soil, its freeing of the other foods, and so on. This is true only in very slight degree. Some plants can get on with little lime, but ordinarily the cultivated plants take up and need larger amounts than any of the other foods. Burn up some orange leaves and there will be more lime than anything else in the ashes. The foundation material of our bones and teeth are lime and where did that come from if not from plants?

Still, it is true that long before enough lime would be gone to make the plants suffer for lack of that as a food, the soil would be in a very bad physical condition that the application of lime would remedy.

On Other Elements.—The very great value of lime as a fertilizer is the way it frees other plant foods. There are tons of these foods in every acre that are not in a form that the plants can use, and the application of lime means a freeing of good amounts of these as a rule, provided there is not enough lime there in the first place.

It frees potash directly when it is in certain combinations. It makes it much easier for the plants to get at the phosphates. It has such a big attraction for phosphoric acid applied as superphosphate or otherwise, that the phosphoric acid joins with it instead of with iron or aluminum, which it joins when there is not enough lime around, and when the phosphoric acid joins with either of these substances the plants nearly lose it for good. Therefore, plenty of lime means a moderate loss only of superphosphate when this is used as a fertilizer and it means a good use of the phosphates already in the soil.

Likewise it is of a big benefit to nitrogen all the way along. At the very start alfalfa, clovers and the other legumes will hardly grow if plenty of lime is not present and even when they do grow they take up as little nitrogen as possible from the air. Lots of lime means a fine growth and lots of nitrogen taken from the air. Then after the nitrogen is in the soil the lime helps to prepare it for plant use. It helps it turn rapidly into ammonia and thence into nitrates. It helps good bacteria along and almost universally its action is good, very good and only good. Take a peat soil that has lots of nitrogen, and all peat soils have lots of this element, and little lime, then add lime, and the nitrogen at once starts getting ready for plant use.

Truly, if lime in itself is not specially useful as a plant food its cheapness, concentration and general good effect on the other plant foods makes it a substance of value beyond compare for application to the soil that needs it.

There are other points to be considered, such as: What soils need lime? How it can be obtained? What form of lime to use; and so on, and these will have to receive separate consideration.

PLOWING FOR SUGAR BEETS.

The big emphasis that some sugar beet companies in California place on deep plowing may be all a mistake, according to results of German experimentation from 1902 to 1909, which have recently been made public. It was found that plowing land to a depth of 10½ inches appeared to be sufficient for sugar beets, and that increasing the depth from even 8 inches to the 10½ inches yielded but a slight increase in crop. That 10½ inches, however, is pretty deep in comparison with lots of California plowing, and California

soils and climate are different from those of Germany, too. An interesting feature brought out was that exactly as good yields were secured from rather conservative fertilizing as from very heavy fertilizing.

VINE MILDEW AND CUTWORMS.

To the Editor: I would like your opinion, in the light of latest investigations, in regard to spraying Sultanina and Emperor for control of mildew. We all admit that thorough sulphuring is the best and most practical method of control, but we must have a temperature of 85° before we can depend on sulphur.

Last spring many vineyards suffered from the attacks of mildew before it became warm enough to use sulphur, hence the necessity for spraying. I noticed greatest effect of damage when sprouts were out about two inches. For best results, should the spraying be applied when the buds are swelling, or when sprouts are out about one inch, or both? Do you think it necessary to make the first application when sprouts are out about one inch? Should the weather continue cool, how long should the interval be before applying the next spray to prevent a later infection?

While applying spray for mildew, can a poison be added to kill the cutworms? If so, what is best to use, and what proportion to prevent injury to the foliage, and at the same time kill the worms? These worms often do enough damage to warrant the application of spray if they can be controlled thus. Is it practical to use a poison bran mash to kill worms?

Do you consider Bordeaux any better than lime-sulphur? What strength should be used on the foliage?

This mildew is a serious matter with vineyardists, and any information you might give will be highly appreciated.

C. E. D.
Kingsburg.

ANSWER BY PROFESSOR BIOLETTI.

To the Editor: I have read with interest the letter of C. E. D., Kingsburg, regarding the spraying of vines for mildew. I receive a number of letters of similar import every year, but I know of nothing to make me change the recommendations given in our Station bulletin on the control of mildew. In this bulletin, it is stated that there is absolutely no evidence that winter spraying of the vines has any effect whatever on the control of mildew, and therefore any spraying done for this purpose is wasted. C. E. D. states that his vines were injured by mildew when they had sprouts only two inches long. This is probably due to faulty observation. I think it extremely doubtful that mildew ever injures vines at this stage of their growth. Even though he did spray them, it would be of very little use at this stage, and in any case very much inferior to sulphuring. Spraying will only protect the leaves which are covered with the spray, and as the vines at this time rapidly form new shoots and new leaves, these new shoots and leaves would be fully exposed to infection, unless spraying could be done every ten days or so. With regard to the coolness of the temperature in the spring, this does not affect the control of mildew, except in very foggy districts. If the weather is warm enough for the growth of mildew, it is warm enough to make the sulphur effective in controlling the mildew. While the shade temperature may not rise to 85° in the spring, the temperature on the surface of the leaves when the sun strikes them will often reach this or higher. A good deal of complaint of the failure of sulphur to control the mildew is due to a confusing of other troubles with that of mildew. I think there can be no doubt that powdery mildew or oidium of the vines can be controlled easily and perfectly in Fresno county by the methods described in Bulletin 186; but sulphuring will not control sunburn, alkali, frost injury, and a number of other troubles of vines which are often confused with the effects of mildew.

With regard to the control of cutworms in the vineyard, the method described in University Bulletin 192, 'Insects Injurious to the Vine,' is usually effective. This consists in putting in a small piece of poison bait near the foot of each vine. The poison bait is made by mixing 40 lbs. of bran and 2 gals. of cheap molasses with 5 lbs.

of arsenic or paris green. An objection to this bait is that it soon dries up and does not seem to be relished by the cutworms. Another poison bait which I personally have found very successful in controlling cutworms in the garden, which probably would be equally effective in the vine-

yard, consists of a dry mixture of 10 lbs. of bran, 5 lbs. of middlings, and 2 lbs. of arsenic or paris green. This is much more easily applied than the wet mixture and remains effective until it is eaten up.
FREDERIC T. BIOLETTI.
Berkeley, February 27.

Why is Cap-Stemming Difficult?

[Written for the PACIFIC RURAL PRESS by
W. CRUESS, Assistant in Zymology,
University of California.]

Cap-stems are the dried pedicles, or the small stems that attach the grape to the main stem of the cluster. These must be removed before packing. During the summer of 1912 several samples of seedless raisins were sent to the Viticulture Department of the University for examination to determine the probable cause of defective cap-stemming. One of the samples was said to stem without difficulty, whereas the other, from the same district, was too soft to allow satisfactory removal of the stems by the capping machine. A moisture determination on the two samples gave the following results:

	Moisture, %
Sample 1—"Too soft to stem".....	12.14
Sample 2—"Stems O. K.".....	7.58

These results indicated that the trouble was due to the greater amount of moisture in the sample that did not stem properly. Sample 1 was quite soft at room temperature, while sample 2 was firm. This difference in firmness, due to the difference in moisture content, seemed to constitute the difference in cap-stemming of the two samples.

Since the problem seemed to be one of rendering the raisins firmer in texture, Professor Bioletti suggested cooling the soft sample to ascertain if such cooling had any appreciable effect on the suitability for cap-stemming. Accordingly, small quantities of sample 1 were cooled to the temperatures indicated below and for the times given in the table:

Sample	Temp. of cooling, °F.	Time of cooling, hrs.	Per cent of stems removed by tapping.
Condition after cooling.			
1. Soft	room	..	60
2. Fairly firm (not so good as 3) ..	40° F.	5	90
3. Firm and dry.....	60° F.	8	100
4. Soft and moist.....	50° F.	24	60
5. Very soft and wet.....	50° F.	48	..

The per cent removed by tapping means the per cent removed by tapping the cap-stem at the base three times with the finger, which was used as a rough measure of the suitability of the sample for cap-stemming.

The tests show that proper cooling makes the raisins more suitable for stemming, but there is danger of making the raisins wet and soft if the cooling is too prolonged. Samples 4 and 5 show the effect of too long cooling, since they were soft and wet from condensed moisture. This was because they had been cooled below the dew point long enough to permit a considerable collection of water on their surfaces, in much the same way that "tears" collect on the outer surface of a pitcher of ice-water.

As to the practicability of cooling soft raisins on a commercial scale, it would probably be safe to predict that good results could be obtained by cooling for a few hours at 50 to 60° F. An artificial cooling plant might be too expensive for most packers to install, but the raisins should be improved by simply exposing them to the cool night air and stemming them before they could soften again during the heat of the day. The hardening effect of cooling is probably analogous to the stiffening of molasses when it is cooled; that is, it is simply a case of the thick syrupy solution of grape sugar in the raisin becoming somewhat hardened by the low temperature.

Since the soft sample of raisins contained more moisture than the sample that stemmed satisfac-

torily, drying tests were made to observe what effect the removal of moisture would have on the stemming. The results are summarized in the following table:

Temp. of drying.....	Time of drying, hrs.	Water content after drying, %.....	Loss of water, %.....	Per cent of stems removed by tapping....	Condition after drying.
room	...	12.14	..	60	soft
140° F.	1½	9.74	2.4	90	firm
140° F.	6	7.64	4.5	100	firm

The method used was to dry the samples at the temperatures indicated and then allow them to come to room temperature before taking observations as to condition, etc.

Drying is seen to greatly improve the fitness of the sample for cap-stemming. Drying for six hours at 140° F. put the raisins in at least as good shape as the sample submitted by the packer that was said to cap-stem properly. In practice it would be possible, perhaps, instead of using a temperature of 140° F. for 6 hours, to use a lower temperature for a longer time and accomplish the same results.

Summing up these rather imperfect and incomplete tests, we may safely conclude that one cause of difficulty in cap-stemming of seedless raisins is due to excess moisture in the berries. Laboratory tests indicate that they can be improved either by cooling to make them firm or by drying them out to an extent such that the final moisture content is that of normal raisins. No large-scale tests were made to ascertain the best methods to carry out cooling or drying to apply them commercially.

Berkeley, February 28.

PENDING GAME LAWS.

To the Editor: I have been interested in your invitation for a discussion of game legislation, but have been disappointed to see so little discussion on a problem of such vital interest to everyone. To anyone who has watched the present legislature, it is evident that we are facing a crisis in the history of game legislation. At last a few people have awakened to the fact that game and other wild life in the State of California has become so diminished in numbers that unless steps are taken to conserve it, it will soon be numbered with the relics of the past.

To anyone with a mathematical mind the following problem will be of interest: Two hundred and fifty thousand wild ducks were sold in the markets of San Francisco last year. If only 100,000 of these were breeding females (a very low estimate), and each of these females, if they had been allowed to breed, would have raised an average of five young ducks, a low average, how many less ducks can be expected in California next year? At this rate, how long will there be ducks left for the hunter to shoot? If by allowing the sale of ducks, San Francisco alone can cause a decrease of some 500,000 ducks each year, it is high time that this wholesale slaughter should stop.

California has been so well supplied with game that she has been slow to see the decrease and still slower to profit by the experience of other States. Mr. Hornaday is right when he says: "The American people are, beyond doubt, the greatest people on earth in locking their stable-doors after all their horses have been stolen." Everyone knows now that the bison and passenger pigeon need not have become extinct. Everyone also knows that when an effort was made to conserve these valuable animals that effort was

"too late." The trumpeter swan and the Columbian sharp-tailed grouse, once abundant in this State, are now extinct. The trumpeter swan has not been recorded in this State since 1886. The wood duck, California clapper rail, band-tailed pigeon, grizzly bear, sea otter, and beaver are approaching extinction in California. If, then, the stopping of the sale of game is the "greatest single step in bringing back our game to us," our duty is clear.

With the recent passage of the "No-sale bill" in Oregon, California becomes surrounded on every side by States prohibiting the sale of game. Eighteen States have practically complete no-sale laws, and twenty-six others prohibit the sale of certain game.

Several of the newspapers have attempted to cloud the issue by raising the cry that it takes away a cheap source of food from the poor man and by raising a "hue and cry" against the gun clubs. The answer to the first statement is to be found in the prohibitive prices. Go to the markets and restaurants of San Francisco and find out for yourself how many poor men can afford to purchase game. The no-sale-of-game law is not legislation in favor of gun clubs only, as it affects the amount of game, and the amount of game affects everyone. Of the 140,000 who take out hunting licenses, only about 5000 belong to gun clubs. Game in California belongs to the people as a whole.

The final solution of the problem of furnishing game as food lies not in the market hunter, but in the propagation of wild game on game farms. Fish culture has long been a success, and there is no reason why game farming cannot be made a success. Eastern States have already shown that this method of supplying the markets with game is practicable. There is an increasing demand for pheasants, and pheasant raising in this State is even now a profitable industry. In the raising of wild ducks, quail and pheasants is offered an exceptional opportunity to "get in on the ground floor" of an interesting, growing and profitable industry.

Let there be no mistake in the attitude taken by farmers in regard to the Flint-Cary bill. Commercialism has caused the waste of every natural resource from our forests to our fish and game. Remember that statistics show that our game must be conserved if we desire to retain an asset of the State estimated to be worth nearly \$200,000,000. And remember also that "the prohibition of the sale of wild game is the most important single measure needed at the present time in California" to assure a permanent supply of game for all the people. In a letter to your legislators insist upon the passage of the Flint-Cary bill.

H. C. BRYANT.
University of California, Berkeley.

IRRIGATION AND CULTIVATION.

The benefits of deep irrigation and thorough cultivation, which have been recognized for some time in California, have been further emphasized by investigations by Prof. Samuel Fortier and S. H. Beckett of the U. S. Department of Agriculture, which are summarized in a recent bulletin.

The results show that a dry granular soil mulch 3 in. deep reduced the loss by evaporation from the soil at least one-half, a mulch 6 in. deep saved 75% of the evaporation, and a 9-in. mulch was still more effective in reducing evaporation but was too expensive to be of practical value. The effect of cultivation in lessening evaporation was especially marked in case of the heavier soils. The authors state: "There is a tendency in light sandy soils for the uncultivated surfaces to mulch themselves and after the first few days following the irrigation the losses diminish very rapidly, and in the end little advantage is shown in favor of cultivation."

Irrigate Deeply.—The loss of water decreased with the depth of application. "Practical considerations, however, limit the depth. Under conditions such as exist throughout the arid region this practical limit lies, it is believed, somewhere between 6 and 9 in. * * * In general, it may be stated that wherever the soil and the crop will permit, the water should be applied in deep furrows rather than by flooding; that one deep, heavy irrigation is preferable to numerous lighter irrigations, providing the crop is deep-rooted,

Live Stock Notes and Comments

[By Our ASSOCIATE EDITOR.]

The detailed Federal report on the number of livestock in the different States, which we referred to several weeks ago, has been issued. Instead of having some definite figures to talk about, however, it looks as if the whole thing were more or less guess work and not very good guess work at that. For example, the estimate of milch cows in California is only one per cent more than the estimate for 1912, January 1st, and it don't seem that anybody who was familiar with California conditions would believe that we had, practically speaking, no more dairy cows in the State than we had a year ago. We have entered a great era of development and the accurate statistics of the State Dairy Bureau show a big increase in butter production over the preceding period, to say nothing about what has been going on with sweet cream and market milk. Even in the San Francisco market the butter is coming in this year at the rate of 5 pounds to 4 in 1912, an increase of 20 per cent rather than 1 per cent. Still, taking the estimates of the country at large as fairly accurate, in which all kinds of stock are said to have decreased, except horses and mules, it is pleasant to know that California is going ahead rapidly, as she never even did before.

These estimates make California have a 2 per cent increase in horses, 2 per cent increase in mules, 1 per cent increase in dairy cows, 2 per cent loss in sheep and 1 per cent loss in swine, 4 per cent decrease in other stock. We don't believe it at all, not because it is bad advertising, but because self-evident facts show a very big increase in everything but sheep and range cattle.

Produce Exchange.—Speaking of the 20 per cent increase in butter receipts in San Francisco, that comes from the San Francisco Wholesale Dairy Produce Exchange and it is accurate and reliable. Some people, egg producers mainly, have been getting after this Exchange recently, but it is interesting to note the amount of business conducted through it. After the Government started to look into the way the Exchanges of the country determined quotations, the Chicago Exchange came out with an account of the trades made, showing that as an Exchange it was the real thing. During 1912 the Butter and Egg Board reported 29 sales of butter and 1516 sales of eggs. During 1912 on the San Francisco Exchange there were 1116 sales of butter, 2843 of eggs and 427 of cheese, a total of 4,385 against 2,545. The Chicago organization has 203 participating and 213 non-participating members, the San Francisco concern about 30. It looks as if the local organization was meant to do business, not to fix an arbitrary quotation, also being the only dairy exchange to make a quotation by actual, genuine sales. And, by the way, there is the hint that the sales made on the Elgin Exchange, since the Government took a hand, were fixed up beforehand. Well, California is pretty well fixed, even if the crop report does say we are nearly at a standstill in livestock.

Legislation.—In spite of the great discussions of dairy legislation appearing recently, more can be said. The Creamery Managers Association is working at their dairy bill which makes the grading of cream compulsory and some other matters that are mainly to be commended. This and other dairy bills ought to be in the hands of every dairyman who takes an interest in public affairs and suggestions sent to Assemblyman Guiberson of Tulare, who is in charge of the Association bill, or to the PACIFIC RURAL PRESS, where good ideas will be given publicity. That bill for the grading of cream, for instance, has lots to commend it. Good cream means good butter and good butter means better prices. Only about 35 per cent of California butter is fit for fancy trade and from five to ten cents per pound premium is often given for high-class butter because the housewife wants to be sure of getting the best. Better save the trouble of hunting hard for good butter by making all of it good. Then more will be used, the trouble of selling will be reduced and the profits will go to the dairyman. If you don't believe the last, hunt up the prices given by some of the

leading co-operative creameries in California, like the Danish of Fresno and the Tulare Co-operative, and compare them with ordinary returns.

Stallions.—Speaking of legislation, the stallion registration law, which went into effect for the preceding season, is worth while paying attention to, and if we can believe the experience of other States it will have more and more effect as time goes on. It is claimed that in Minnesota, where a stallion registration law has been in effect for several years, that there is hardly a scrub left, while in New York, with no law at all, a good, pure bred stallion is badly outnumbered by his scrub relatives. There is enough scrubs left here and nothing to prevent their use except the good sense of the mare owner. Good judgment of what real merit in a stallion is, pure bred or not, and good sense in breeding are the things that count.

* * *

If a person really wants to know what value is in a stallion and will not let the fact of registration in a breed society stand for true merit, he can get a good idea of the same by the price that was paid at a sale of Shires in England a week or so ago. Lord Rothschild sold 32 colts and fillies for an average of \$2,270, and the junior champion at the London Show last year brought \$20,500, the highest price ever paid, it is said, for an immature stallion of any breed.

* * *

Before dropping the subject it is a good idea to again state that something more than breeding is required for good stock, and a very important matter is a tonic for all kinds of stock, horses, cows, hogs, sheep and everything. Read the answer Dr. Creely made a week or so ago to a dairyman whose cows hankered after bones and other rubbish. Salt is mainly an imitation of what animals' systems really require rather than the real thing. Variety is the spice of life in food and otherwise, and variety in food is largely because something is lacking if only one or two things are fed. If you haven't got some good stock preparation, go buy one, or make up a lot on the basis of the Doctor's recommendation. It will help out as a change of food would; in a way it will give a little spice to the lives of the stock.

COLD STORAGE OF FARM PRODUCTS.

From returns to the Department of Agriculture by cold storage warehousemen it is inferable that the fresh beef, fresh mutton, fresh pork, poultry, butter, eggs and fish received into cold storage in a year amounts to a weight of at least 1,000,000,000 pounds and very likely a quarter of a billion pounds more. The eggs received into storage in a year are approximately 13½ per cent of the farm productions; the fresh beef is over 3 per cent of the census commercial slaughter of cattle; mutton over 4 per cent of that slaughter of sheep and lambs; fresh pork 11½ per cent of that slaughter of hogs; and butter 25 per cent of the creamery production. It is stated that "the man who places food in cold storage is somewhat in the situation of the man who forestalls the market. He may not attempt to do so, but the power may be a temptation. The affairs of such a business as this should have publicity. The public ought to know how much goods are in storage from month to month and what the movements of receipts and deliveries are."

In order to break even and make a profit the selling price of the goods has to be greater than the cost of the same on going into storage, and the longer the products are held the greater the advance that is necessary. For the average length of time in cold storage, as ascertained by investigation, the actual costs are for: fresh beef, 0.997 ct. per pound; fresh mutton, 1.564 cts. per pound; fresh pork, 0.35 ct. per pound; fresh poultry, 1.079 cts. per pound; for butter, 2.532 cts. per pound, for eggs, 3.505 cts. a dozen.

Cold storage has influenced considerably the relative monthly consumption of commodities and has made it more even throughout the year. "There has also been a change in relative monthly prices, due to cold storage. In the case of eggs

the relative price has increased in the season of natural plenty and diminished in the period of natural scarcity. In the case of both butter and eggs the annual price level has been raised by cold storage for a reason apart from the costs." The latter statement through a little light on the agitation about eggs and cold storage, etc., in this State recently.

HOW TO FIGURE PRODUCTION.

To the Editor: In figuring out the average production of butter fat in a dairy herd should all the cows in a herd be counted or only those that are milking? In other words, if a total of 50 cows are kept in a dairy and only 40 are milked at a time and those 40 in one day produce 40 pounds of butter fat, would it be correct to say that the cows in the dairy averaged a pound a day, or would they only average four-fifths of a pound a day? Also, about what does the average dairy cow in California produce in a year?—DAIRYMAN, Solano county.

The correct way of calculating is to figure in only those cows that are actually milking. For example, a cow is considered a pound-a-day cow if she averages up enough milk to give a pound of fat a day while she is milking. In the year she would be dry perhaps six weeks and milking a total of about 340 days. If it were necessary to include her in the herd all the year when figuring out production she would have to produce in the year, that is, in the 340 days she was milking, 365 pounds of fat rather than the 340 pounds, in order to hold up to an average of a pound a day.

There is no accurate data regarding the average production in California of dairy cows. Very probably it is not far from 150 pounds per cow per year. That is the average production as estimated by Prof. Leroy Anderson in the bulletin on Cow Testing in Humboldt County, published by the College of Agriculture. It would be very interesting to know just what our readers are getting from their herds, possibly also why they are getting the results they do, whether it is on account of good breeding, poor breeding, good care or poor care, good feeding or poor feeding. The actual amount of fat produced by a herd can be told by any dairyman who sends his cream to the creamery. He need only look at his cream check for the month, see how many pounds of fat he is paid for and then divide that by the number of cows he has to see what they average in the month. If they average less than 15 pounds per month for the year through they are likely to be below the present standard.

The fat paid for by the creamery will, however, fall short of the real production of the cows, as there is always a certain percentage of the fat lost in the skim milk and more is used in the whole milk feed to the calves, used for household purposes, etc.

Just here it should be said that the heavy production of animals tested by the different breed associations is something not to be looked to as a goal for the average dairyman. These tests are of the utmost value in showing what can be done and in finding animals of special worth. Those cows, however, that produce between 800 and 1,000 pounds of fat per year, and even more, are exceptional animals, are milked for all they are worth for 365 days in the year, fed to the ounce of milled feeds that will increase the milk flow to the greatest extent, and otherwise are given the best of care. The average of pure bred cows given years tests in some dairy breeds is about 325 pounds of fat for heifers with their first calf; 350 pounds for three year old cows, and 415 pounds for mature cows. These cows were practically all milking for the whole 365 days, though not usually given any great amount of forcing. They were also very evidently picked cows of their herds. Roughly speaking, it is probable that these cows would average only about 75 per cent as much fat if given normally good dairy care and dried up as a dairy cow ordinarily would some time before freshening.

Still, these records are distant far from the 150 pound average in California, which with care and selection could be greatly increased, and as above stated, it would be very interesting to know what our readers who are running only commercial dairy herds are averaging and that could be found in five minutes after getting the cream check at the end of the month.—D. J. W.

Among Eastern Breeders.

[Written for the PACIFIC RURAL PRESS by
W. M. CARRUTHERS.]

A trip to the Middle West and the far Eastern States in the winter time in pursuit of pure bred livestock to fill orders for California breeders is generally filled with many disappointments and troubles, although much instructive data can be gathered, if one is observant, from the different workings of our great Eastern stock farms.

While East this time the writer visited three of the greatest constructive Shorthorn herds on this continent: namely, White & Smith, St. Cloud, Minn.; D. R. Hanna, Ravenna, Ohio; and Carpenter & Ross, Mansfield Ohio. Constructive, because they have done and are doing something to make Shorthorn history. These three great herds, with the possible exception of F. W. Harding, Waukesha, Wis., have done more to mold the pattern of the Shorthorn type to compare with the Angus and the Hereford on the open market from the standpoint of the block, than all the breeders in this country combined.

Meadow Lawn Shorthorns.—The late George P. Bellows never spoke a truer word when he announced from the rostrum that the greatest gift that Scotland ever gave to the bovine world in this country was Leslie Smith, the congenial manager of Meadow Lawn herds. It was the pleasure of the writer while at this farm to look at sixty imported cows in one pasture, every one of them a good one from Highland Champions down. The breeding of Shorthorn cattle is a business by itself and here on this farm, when one looks over the herd, it becomes more evident all the time. The intermingling of the blood of many of the great bulls of the day proves that careful study of Shorthorn work will bring a marked success when brains and money are used together. The record that this great herd has made in American shows the last quarter of a century is proof enough that Meadow Lawn has done its part in upholding the favorite breed.

Cottage Hill Farm.—Cottage Hill Farm is located two miles from Ravenna, Portage County, Ohio, and is owned by D. R. Hanna of political fame. When Mr. Hanna started this Shorthorn herd fifteen or twenty years ago it was not from a speculative standpoint, but to do some good for the livestock interests of this country. He lives on his ranch and is his own general manager, having a foreman at the head of each different department. He now owns three hundred head of registered Shorthorn cattle which would be hard to equal anywhere in the world, and it was he himself who personally selected the herd bulls for this great herd during the last ten years. If any one should question his judgment of Shorthorns, they have only to look over the record of the Cottage Hill winnings at the great shows in this country: at both the Kansas City Royal and the International just passed they exhibited eight head, winning young herd, calf herd and two junior champions at both shows. Mr. Hanna has just recently organized, in Portage County, a community breeding association, which he started by putting \$50,000 into it, also giving an imported Percheron stallion and three Guernsey bulls as a donation. He is president of this Association and at a meeting which was held while the writer was at Ravenna, it was decided to purchase a hundred of the very best of pure bred bulls of all breeds and twenty-five first-class stallions for distribution throughout Portage County where they can be of most use to farmers. This is community breeding in the right kind of style, and it is to be hoped that some day ere long some of California's counties will be doing the same kind of work.

Carpenter & Ross Herd.—Here were found a great collection of imported Scotch matrons of great thickness and quality (the kind the butcher likes). The first thing Peter Ross had to say when we arrived on the ranch was that Avendale was dead. This will be a hard knock to this breeding farm, as it is doubtful if there ever was a better breeding bull in America than Avendale.

From these three great breeding farms the writer purchased ten head of Shorthorn cows from Carpenter & Ross, eight head from Cottage Hill Farm and eight from the Meadow Lawn Farm.

These twenty-eight head of Shorthorns will no doubt infuse new blood into many of our California herds and much good will result to the breed's interest.

Dollar Holsteins.—After leaving the Hanna herd we next lined up on the farm of E. H. Dollar, Heuvelton, New York, where the great Holstein bull Pontiac Korndyke lived for many a year. A book could almost be written on the life and the great workings that this man has performed in Holstein lines. He started in as a clerk in the office of the Standard Oil Co., Cleveland, Ohio, and after getting a thorough training in the business world he applied this to the breeding of Holstein cattle, with the result that he is classed the greatest Holstein man the breed has produced in the last quarter of a century.

The secret of Mr. Dollar's success in producing Holsteins is the great care that he practices in raising his calves. His words to the writer were: "Feed and crowd the young things all you can until they are a year or fifteen months old and you have won the battle regarding the breed's size."

A few words regarding the way Mr. Dollar cares for his calves at this time might be of some benefit to our readers. The barn is 150 feet long by 20 feet wide. The inside is divided into pens 6 x 8 in size with a four-foot alleyway down the middle in which a track extends from the main barn. On this is run a truck holding eight or ten cans of milk which is used to feed the calves. The partitions in this barn are all made of woven wire fence, and the building itself has windows clear around it, making lots of light which is very necessary to the health of the calves. The ventilation system is one of the best the writer ever saw. Movable galvanized chutes a foot and a half square are let down into the alleyway a foot from the ground about thirty feet apart, thus taking all the foul air out of the barn and keeping it sweet all the time. At feeding time these chutes can be raised to a height of six or seven feet to prevent interference with the feeding.

Method of Feeding.—Mr. Dollar believes in a great deal of exercise. The calves are allowed to run free in the pasture when the weather is so that it can be allowed. Each calf is fed a quantity of skim milk according to its age twice a day. Oil meal is fed along with this skim milk in quantity to suit the size of the calf. Calves over six months will take as much as two handfuls of oil meal twice a day, younger calves not getting so much. As soon as the feeding is over the calves are turned out on to a good pasture where they can run until feeding time comes again. After the calves have had their milk and oil meal, they are given a quantity of hay and are left long enough in the barn to consume this before being turned out. If the calves under this mode of feeding do not gain as rapidly as they ought to, some grain is fed them, corn, oats and bran of equal parts, a pound of grain to every hundred pounds of the calf's weight.

Stevens Brothers Holsteins.—From Heuvelton we journeyed to Liverpool, New York, where we visited the Holstein farm of the Stevens' Brothers, the home of King of the Pontiacs, perhaps now the greatest living Holstein bull in this country. This herd is run from a practical business standpoint and for years it has been paying enormous profits. There are about three hundred cows in the different barns, and every one over two years old has an A. R. O. record. King of the Pontiacs is a much better bull individually than his sire, Pontiac Korndyke, and in looking over the herd this fact seems to have been demonstrated over and over again.

One of the principal items of interest which struck the writer in the workings of this great herd was the mode of taking care of that dreaded disease, tuberculosis. The herd is tested annually instead of semi-annually, as it is Mr. Ward Steven's idea that this is the proper way to test a herd. All tubercular cows are sent to what is known as their tuberculin farm, four miles away from the main herd. This farm is equipped with all the most modern conveniences and sanitary contrivances for the care of the cows. It is the plan of this firm to get out of these tubercular

cows all they possibly can, and it is for this reason these barns are so equipped.

When a tubercular cow drops her calf this calf is immediately taken away from the barn and brought over to the main breeding barn, where it is raised on good, clean milk. After six years of this kind of work the records show that not over 2% from these tubercular cows have ever reacted. A way had to be devised to know how to care for the milk from these tubercular cows when they were fresh, and the plan finally adopted was to feed this milk to grade calves and sell them to the butcher at two and three months old as veal. These calves are picked up all around the country and shipped to this farm where they are raised on this milk. Stevens Brothers consummated a deal with one of the leading butchers in Syracuse, N. Y., to take all these calves when they were ready for slaughter. These calves are all killed under government inspection, and the writer was informed that rarely any of these calves were condemned for tuberculosis.

Powell's Holsteins.—We next visited the herd of Mr. Powell, of Syracuse, N. Y., whose herd is very strong in the blood of King Segis. Mr. Powell has been breeding Holsteins for almost thirty years, and the two chief aims which he is trying to accomplish are the high butter test and conformation. His herd is probably the most uniform herd the writer saw in all his travels while East this time. In size they strike about medium for a Holstein cow, and not one cow in his barn tests less than 4%. Mr. Powell has made a great success in gaining the two points, which has taken years to accomplish. For the last five years his herd has won almost everything in sight in prizes at the New York State Fair, thus demonstrating that he has done a world of good in holding up the conformation and quality of the Holstein cow.

From these two herds and others around Syracuse and Liverpool, N. Y., the writer secured for California breeders twenty-eight head of registered Holstein cows and twelve head of bulls. Amongst the bulls are five sons of King of the Pontiacs, all from high testing A. R. O. dams.

Sheep.—We next visited the Shropshire flocks in the East, and as the British ports were closed last year to foreign importations, all exhibitions during the year 1912 comprise home-bred sheep. The writer has always claimed that if our American breeders would devote the care and attention that the Britisher gives to producing mutton sheep, we could equal if not beat them at their own work. It is doubtful if there are two better flocks in England today than the flocks of Mr. Wardell of New York and Leu Kamerer of Wisconsin.

At the last International the grand champion Shropshire ram was bred and raised on the farm of Leu Kamerer, beating every imported ram that showed against him. These two great flocks, comprising ewes of great size, covering and quality and with the best of rams at their head, could never have made the success that they have made had they not had such shepherds as Tom Bradbourne and Dan Taylor to look after all the detailed end of the work. A flock of good sheep requires just as competent a caretaker as a good herd of cattle. Right here is where many of our breeders fall down; they secure fine specimens of the different breeds of livestock and for the want of proper care the enterprise becomes a dismal failure.

From these two great flocks the writer purchased a carload of registered Shrops for California breeders, thirty ewes and the balance were rams. Amongst the ewes are five of the International winners, the balance of them have for sires the champion ram at the International and an imported ram which Mr. Davidson claimed to be the best stud ram that he ever used at Mill Brook Farm. The rams are large, growthy, thick fellows, and when distributed in California ought to improve the breed materially.

The writer also had the pleasure of visiting many of the good Berkshire and Duroc Jersey farms, where many high class animals were purchased for California breeders. A Berkshire boar, a son of Star Masterpiece, is worthy of mention. This hog has the best Berkshire head, the best coupling and hams that the writer ever had the privilege of purchasing. He goes to one of California's best Berkshire herds and may be seen later at one of our fairs.

GETTING THE MOST OUT OF FOXTAIL.

(Continued From Page 289.)

amount is gradually increased until the last two or three weeks six pounds of barley per animal is the allotment. The feeding period is usually about ninety days.

The secret of cut hay is mixing well, every particle of grain should be worked into the hay, after which it should stand for two or three days until it is soft and mushy and can be rolled in the hands like a snowball.

PROPER CURING.—By keeping a supply ahead for several days there is never any danger of its not being properly cured. A good test as to whether the mixture is properly cured is to examine the heads of the stock to see if there are any fox-tail beards clinging to the hair around the mouth. This should not be, for the spines, if cured, will not attach themselves to anything, so soft and pliable are they. Merely wetting the foxtail hay does no good, in fact it is worse, for stock do not like wet hay, besides making their mouths sore. In applying the brine to the hay, care must be taken not to make the mixture too washy, as then it will not cure properly, the stock will not relish it and they are liable to scour. Third, putting the foxtail hay in silos. No matter how dry and harsh foxtail is, it cures well in a silo, and the stock prefer it to alfalfa. This is noticeable in first-crop alfalfa, when the silage comes out, often there will be bunches of foxtail and stock will search through the stuff for it and leave the alfalfa untouched in the stanchions.

Foxtail can also be used to excellent advantage as a fall feed, and is so extensively used by Henry Miller on his California ranches. In making his allotments and preparations for feeding, fox-tail plays an important part. He leans toward this plant because it continues growing until so late in the fall, thereby furnishing his stock green feed up to the time they are ready to be placed in the finishing corrals. When he commences irrigating for fall foxtail, Mr. Miller is careful not to put the water on while there is any danger of hot weather, as this grass burns very quickly in a warm sun or wind. In fact, whenever he desires to kill off foxtail in an alfalfa field, water is turned on, in order to bring it up in time for a hot wave to hit the tender shoots and the plant soon withers away.

SHEEP ON FOXTAIL.—In feeding sheep hay that has foxtail in it, the danger of the beards can be lessened by scattering the feed over the ground, just enough so that the animals can pick it up like they would grass. For, when too much is given them, the hay is bunched and then the sheep will root into the pile to see if there is not something better. They not only get foxtail in their eyes while doing this, but also get the hay dirty so that they will not eat it subsequently. Besides, the beards enter the wool and finally work their way through the skin into the flesh. This spoils the animal as far as the public market is concerned, because when it is killed and the pelt removed, a large, ugly red spot is left on the carcass that the government inspectors will never pass by.

When sheep are on foxtail pasture, many farmers find that they obtain better results by running a mower through the field just as it matures; then, letting it lie until it cures and until the new growth starts up. The new shoots will hold the beards close to the ground and prevents them getting in the wool.

Another method of handling this pasture is to let the wind thresh out the heads, before turning the sheep on it.

They do especially well on such feed if the ground is smooth and solid, so the foxtail does not tramp into the dust.

Lambs are especially susceptible to fox-tail, and sheepmen are finding it profitable to be always on the watch while they are on green feed. Whenever the foxtail shows the slightest trace of color, the lambs should be taken away immediately and put on green feed where there is no foxtail. The spring of the year is when the danger is greatest, the eyes are affected first, and unless they are kept cleaned out, a running sore will form, so as to make them unmarketable. The fox-tail will also get in the wool, but by running the lambs through warm, clear water it can be washed out.

FOXTAIL JAW.—Oftentimes cattle that are feeding on foxtail will get a wad of it lodged behind their gums, or a beard will catch in the throat. When so troubled cattle show it by frothing at the mouth and holding their nose in the air. It is easily removed by driving the animal into a chute and the mouth wedged open with a stick of wood. Then by running the fingers back of the teeth, any lodgment will be removed. Whereas if the afflicted animal is not attended in this manner, a hard sore will form so as to affect the jaws and the government inspectors will condemn the body.

TREND OF THE TIMES.

The trend of California agriculture was illustrated in three items brought up by a caller from the Sacramento Valley this week. California is getting out of the extensive agriculture idea and the big man is changing his tactics at the same time that the small man is coming in.

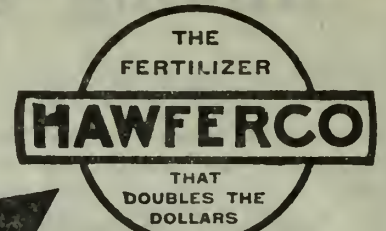
A few years ago hardly a grain farmer would think of doing any kind of farming but grain farming. Recently two of the largest wheat farmers in Colusa and Glenn county announced that they would plant out extensive orchards this coming season. That is one end of the development.

The other change is what the small farmer is doing. A city dweller saved up enough to purchase a 40 acre tract on the same vicinity and had enough besides to develop it, provided that he buckled to pretty hard, and did his own work. The first plan was to plant out 20 acres of fruit trees and to make a good living while these were growing, the other 20 acres were to be planted to logan and strawberries, half and half of each. All the labor would have to be performed by the owner. Fortunately a neighbor in discussing the proposition started to figure out how the work would be, and so a change was made in the plans. It is a fine thing to have people change from city to farm life, with enough capital to keep their head above water and plenty of courage to face difficulties to come up. It is but typical of the problems that confront the city men coming to the country, but it is always a good thing to look at every side of a question and if the old timers don't raise a certain crop the new comer had better not try it.

Around Willows country the settlers are doing one thing that will set them off right, they are getting a hold of good dairy cows. Within the last year 300 cows have come in, and others are coming. A dairy association may soon be started and cooperation for mutual benefit will be the rule.

Apples grown on irrigated soil have been found to be somewhat higher in moisture and higher in sugar than apples grown on unirrigated soils. They also average larger in size than apples grown on unirrigated land. Apples from the latter contain a higher percentage of the other solids than the former.

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Never Fail.
They Are
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And Sure



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DOUBLES THE
DOLLARS

What the Beekeepers are Doing.

The PACIFIC RURAL PRESS is preparing a directory of all co-operative or other public and semi-public institutions in California, and a request was made to the Stanislaus County Beekeepers' Association for information as to officers, etc. In reply, J. G. Gilstrap sent us the following letter regarding the whole subject of beekeeping organizations in California:

To the Editor: The California State Beekeepers' Association is the central or head body. It is composed of its direct members and also of members of affiliated districts or county associations.

The officers of the present year are as follows: President, J. W. Feree, Newhall; secretary, A. B. Shaffner, 4232 West 1st street, Los Angeles.

The executive committee is composed of M. H. Mendleson, Ventura; G. L. Emerson, 3197 Eagle street, Los Angeles; J. L. Gilstrap, Ceres. The president and secretary of each affiliated association are advisory members of the executive committee.

The affiliated associations are as follows:

Stanislaus Beekeepers' Club—President, J. F. Snover, Ceres; secretary, F. W. Burtch, Ceres.

Northern California Beekeepers' Association—President, C. Hauser, Sacramento; secretary, A. L. Heim, Sacramento.

Tulare County Beekeepers' Club—Secretary, C. W. Tompkins, Tulare.

Riverside County Beekeepers' Club—President, T. O. Andrews, Corona; secretary, H. J. Warr, Perris.

Imperial County Beekeepers' Club—President, B. G. King, El Centro; secretary, R. R. Snow, El Centro.

Ventura County Beekeepers' Club—President, B. L. Pressey, Santa Paula; secretary, E. F. McDonald, Santa Paula.

Los Angeles County Beekeepers' Club—President, E. B. Shaffner, Los Angeles; secretary, J. D. Bixbee, Covina.

Thus we are happy to note that after 23 years of ceaseless labor on the part of the more prominent beekeepers of southern California an organization has been perfected that has won the confidence of practically all the apiarists of the State and has succeeded in getting every county or district organization to affiliate.

It may be said of the annual meeting of the State association in Los Angeles, December 12, 13 and 14, which was attended by more than 300 beekeepers, that it was one of the grandest and best conventions ever held in the West and that a number of very important matters were taken up, and it is now being developed into a working reality as soon as possible.

Among the propositions being taken up is the establishment of packing and marketing warehouses where and by which will be perfected plans to put pure—guaranteed pure—honey on the market in such manner as will suit the trade. Briefly stated, we beekeepers are weary of the load we have been carrying in the matter of giving nearly half our crop to the shrewd middleman and speculator.

Arrangements are also being completed for the publication of a monthly bee journal to be known as "The Honey Bee," which will make its initial appearance in March. This paper will occupy a much needed field, answering the needs of the Western beekeepers as no journal now in print does.

These are only a few of the good things set in motion at the State meeting. Our battle cry is "Progress."

Ceres. J. G. GILSTRAP.

We believe that there is at least one other beekeepers' association, the Orange County Beekeepers' Association, Roy K. Bishop, secretary, Santa Ana.

The beekeepers are doing a great work in co-operation, to say nothing about their other activities, and with other producers have found that the one way to get fair prices for their honey is in getting together. Beekeepers, through their general isolation from each other, are more than other producers at the mercy of the buyer, but this last season, through good crop reports and publicity and standing together, great advantages in prices were secured. Co-operation in getting supplies and improving the bees has helped mightily.

DOES THE FARM BELONG TO THE FARMER?

Referring to recent discussions on the game laws we shoot this sassy declaration by a farmer in the Rural New Yorker, from that State the same questions are up as in this State:

"Some are contending that as game belongs to the State, he has a right to go anywhere in search of it. Now let me ask the gentleman a question. Just who is the State? My impression has always been that the people are the State. That being the case, it would appear that the hunter's and the farmer's rights in any game are exactly equal. But if the farmer says to the hunter that the game on the farm belonging to him, must not be killed, he is well within his rights, and no hunter dares to override him, for game on his land he has rights of in addition to his rights in ownership in the land in which the hunter must trespass in order to get the game. I believe the law has something to say about trespassing; the farmer's farm is just as much private property as the city man's lawn, and the farmer has absolute dominion over it.

"No farmer would think of going to town and holding a picnic on the city man's lawn; if he did do anything so idiotic, he would expect to receive an invitation from some policeman to accompany him down to the headquarters, and it would not be late in the afternoon either. And in all probability, the farmer with his little picnic would not do one-tenth the harm that hunters all frequently do. I sincerely hope the farmers will unite on this question and impress forcibly on the hunter's mind that a farm is private property and that they must keep off or suffer the consequences of trespassing.

"The idea that a law giving a farmer the right to warn any person off his farm, is class legislation, is ridiculous. Any person who sets on the railroad's rights of way lays himself liable for trespass, unless he crosses at places provided for that purpose and no one thinks of disputing the effect, yet the railroad is a semi-public institution. The farm is strictly a private one, but to see the way some hunters roam over one's land would give anyone the idea that farms were intended solely for the accommodation of hunters, and were open to the public at all times, regardless of the farmer's wishes."

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Agricultural Directory.

At intervals hereafter there will be given a directory of all agricultural organizations of more than local interest in California. The list printed below is probably subject to a great many corrections, which will be greatly appreciated.

On account of the innumerable organizations of only local scope, these have had to be omitted, but any reader who wishes to get in touch with such an organization can either do so by communicating with some central concern with which it is affiliated or perhaps the PACIFIC RURAL PRESS can provide information on request. There are, for instance, many local associations affiliated with State-wide associations or exchanges, like the California Fruit Growers Exchange, the Walnut, Almond, Fruit Exchanges, the State Dairy and Beekeepers Associations, etc.

Organizations of no more than county interests generally have to be omitted. In several instances, however, county organizations have been included on account of some special influence exerted on the industry with which they have to do outside of the county. If any organizations should be included and are not, it would be a great favor if any subscriber who is a member would write in, giving the name of the same and the name and office of the person to whom communications should be addressed.

EXHIBITIONS.—We would also especially request that all organizations who give annual exhibitions patronized by others than the town or county in which they are located, would send their names in. This applies to Poultry organizations. It does not matter how local the organization is in membership, provided it gives a show patronized from other parts of the State, as this gives the local organization a general interest. Also any organization, social, promotive, or commercial, that takes in a whole district, larger than a county, is entitled to be in this directory. And, repeating, we will print this from time to time in corrected form and want this directory as full and correct as possible.

STATE ORGANIZATIONS AND OFFICIALS.

College of Agriculture, Thos. F. Hunt, Dean, Berkeley.
Agricultural Experiment Station, Thos. F. Hunt, Director, Berkeley.
University Farm and School of Agriculture, H. E. Van Norman, Dean, Davis.
California Polytechnic School, L. B. Smith, Director, San Luis Obispo.
State Agricultural Society, Sacramento.
State Commission of Agriculture, A. J. Cook, Commissioner, Sacramento.
Quarantine Division, Frederick Maskew, Chief Deputy, Ferry Building, San Francisco.
State Dairy Bureau, F. W. Andreasen, Secretary, Hansford Block, San Francisco.
State Veterinarian, Dr. Chas. Keane, Sacramento.
Stallion Registration Board, George Robertson, Secretary, Sacramento.
State Fertilizer Control, John S. Burd, Berkeley.
State Forester, G. M. Homans, Sacramento.
State Board of Health, Dr. W. F. Snow, Secretary, Sacramento.
Veterinary Medical Board, Dr. Otis A. Longley, Secretary, Fresno.
Fish and Game Commission, Mills Building, San Francisco.

FEDERAL ORGANIZATIONS AND OFFICIALS.

Bureau of Animal Industry, Dr. L. E. Hicks, Postoffice Building, San Francisco.

Bureau of Animal Industry (Dairy Division), Warren B. Thurston, Postoffice Building, San Francisco.
Bureau of Chemistry, Food and Drug Inspection Laboratory, H. M. Loomis, Appraisers Building, San Francisco.
Irrigation Investigations, Frank Adams, Berkeley.
Weather Bureau Service, Alexander C. McAdie, Merchants Exchange Building, San Francisco.
Forest Service, Doert Du Bois, District Forester, First National Bank Building, San Francisco.
Crop Reporter, J. E. Rickards, Customs Building, San Francisco.
Geological Survey, Water Resources, H. B. McGlashen, New Customs Building, San Francisco.
Plant Introduction Garden, R. L. Beagles, Superintendent, Chico.

ORGANIZATIONS, GENERAL.

San Joaquin Water Problems Association, John Fairweather, President, Fresno.
Sacramento Valley Development Association, O. H. Miller, Secretary, Sacramento.
North of Bay Counties Association, Ella B. Fischer, Secretary, Petaluma.
Monterey Bay Counties League, Geo. Gould, Secretary, Monterey.
San Joaquin County Grape Growers Protective League, Lodi.
Delta Association of California, Col. John P. Irish, Secretary, Oakland.
Watsonville Apple Annual Association, C. Gentry Redman, Secretary, Watsonville.
Humboldt County Apple Growers Association, Geo. B. Weatherby, Secretary, Eureka.
Imperial Valley Melon Growers Association, El Centro.
Orange County Dried Fruit Association, Harry Lee, Secretary, Santa Ana.
Ventura County Dried Fruit Association, C. L. Uhl, Secretary, Vacaville.
Orange County Celery Association, A. Johnson, Secretary, Smettzer.

COMMERCIAL ORGANIZATIONS. (State Wide.)

California Fruit Growers Exchange, G. Harold Powell, Manager, Los Angeles.
Citrus Protective League, F. O. Wall-schlaeger, Secretary, Los Angeles.
Deciduous Protective League, J. W. Jeffrey, Secretary, Sacramento.
California Fruit Distributors, F. B. McKevitt, Manager, Sacramento.
California Walnut Growers Exchange, Fred Hazzard, Manager, Los Angeles.
California Almond Growers Exchange, P. C. Tucker, Manager, Sacramento.
California Farmers Union, Inc., F. G. Johnson, Manager, Fresno.
California Cured Fruit Exchange, J. P. Dargitz, Manager, Sacramento.
California Associated Raisin Co., James Madison, Manager, Fresno.
California Raisin Exchange, W. R. Nutting, Manager, Fresno.
California Fruit Exchange, J. L. Nagle, Manager, Sacramento.
Lima Bean Growers Association, Chas. Donlon, President, Oxnard.
California Rochdale Co., 112 Market St., San Francisco.

LOCAL ORGANIZATIONS.

California Development Board, Robert Newton Lynch, Manager, Ferry Building, San Francisco.
California State Grange, Patrons of Husbandry, E. T. Pettit, Master, Cupertino.
Farmers Educational and Co-operative Union, Fred Millard, Secretary, Los Gatos.
California Association of Nurserymen, H. W. Kruckeberg, Secretary, 237 Franklin Street, Los Angeles.
California State Floral Society, Mrs.

Henry P. Tricon, Secretary, 882 Grove Street, San Francisco.

Association of County Horticultural Commission, Wm. Garden, Secty., Stockton.
California Livestock Breeders Association, F. J. Sinclair, Secretary, 628 Montgomery Street, San Francisco.
California State Dairy Association, S. A. W. Carver, Secretary, Los Angeles.
California Woolgrowers Association, Fred A. Ellenwood, Secretary, Red Bluff.
California Creamery Operators Association, F. H. Daniels, Secretary, 1223 Park Street, Alameda.
California Creamery Managers Association, H. P. Glasier, Secretary, 3240 Webster Street, Oakland.
California State Veterinary Medical Association, Dr. J. H. Hogarty, President, 1724 Webster Street, Oakland.
California Holstein Breeders Association, James W. McAllister, Secretary, Chino.
California Jersey Breeders Association, J. E. Thorp, Secretary, R. 6, Stockton.
State Beekeepers Association, A. B. Shaffner, Secretary 4238 W. 1st Street, Los Angeles.
Dried Fruit Association of California (dealers), H. P. Dimond, Secretary, San Francisco.
Sierra Club, Wm. E. Colby, Secretary, 2901 Channing Way, Berkeley.
California Federation of Poultry Clubs.

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That are True to Label.
That are Free From Disease.

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Red Gravenstein

Apple Trees for Fall Delivery.

See what Prof. E. H. Van Deman says of this wonderful new apple:

"For two years past I have seen the Red Gravenstein Apple at some of the fruit fairs in the West, and among them the National Apple Show at Spokane. I have also eaten it, and it is a true Gravenstein in every particular except color. In this respect it far surpasses the old variety, because it is almost solid red and exceedingly attractive. I think this difference will cause it to sell even better than the common Gravenstein, from which it is a bud-sport."

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Drawer 6. AGENTS WANTED.



PERFORATED TREE PROTECTORS

TO CITRUS GROWERS, if the recent frost has caused the leaves on your young trees to drop so they will not protect the body from the hot sun, which will spoil a good many of them if not protected, let us supply you with wraps for them. Others are going to do it, why not you? You can't afford to let your trees go unprotected when for about a cent each you save all of them.

Also a word to you who are planting deciduous trees.

Last season we sold over a million Protectors to deciduous planters, and they find it was money well spent. You know that rabbits, hot sun, sand storms, raking of bark in cultivation, etc., always causes a loss that will many times more than pay for the Protectors to protect your whole planting. Let us sell you Protectors. We have the only Perforated ones made. Write for sample and price.

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GROUND SQUIRRELS, GOPHERS, also
BORERS, ROOT APHIS, etc., on Fruit
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Our inoculation is a permanent fertilizer for the soil.

For several years we have been selling

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the only commercially successful preparation of bacteria. We can refer you to many highly pleased customers who have used it.

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all respond readily to inoculation with Farmogerm, and

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Regulating the Commission Business.

As Californians are considering the regulation of the commission business as provided in Senator Birdsall's bill which will come up for enactment by this legislature, a little breeze from New York may clear things. According to the Rural New Yorker, there is pending in that State a Commission Regulation Bill:

1. Licensing commission produce merchants.

2. To place them under a \$10,000 surety bond.

3. To oblige them to render an account within 48 hours for each shipment.

4. To compel them to keep a record of the sale, including the name and address of the buyer and the salesman's slips as part of the record.

5. If the commission merchant disputes the quality or grade or amount of goods as invoiced to him by the shipper he must call an inspector of the Department of Agriculture to make immediate inspection. Failing to do this, he must accept the shipper's invoice.

The department will arrange for inspectors at convenient places.

THE MERCHANTS LYING LOW.—There was a public hearing held of which the New Yorker says:

There was practically no opposition to the bill. The interests that opposed bills of this kind for the last five or six years followed their old tactics, which have worked so well in the past; that is, they remain away from the hearing set by the committee, under the plea that the notice given did not give them sufficient time to prepare. That leaves the farmer without any opposition at the regular hearing, and then they come in later with their work to defeat the bill. These tactics worked very well in past years, and it was no surprise to the friends of the bill that they had, at this time, repeated the tactics of former years. We do not believe it will work this time. The committee is made up largely of farmers and of men representing farm districts, and there is no doubt that the bills will be favorably reported. Before it goes to a vote it will, however, probably be necessary for farmers and consumers to instruct their representatives as to how they should vote on these measures. This is the first year that we have had the sympathy and active support of the consumers in these measures. At last the consumer has come to know that the high cost of food products in the city was not due to high prices at the farm. They have been brought to see that the extravagant and wasteful and dishonest processes of distribution have brought a still heavier burden on the producers than on the consumers. They realize, too, that in order to increase the products of the farm, production must be made more profitable to the farmer. They see that unless this is done production will continue in decrease, while the consumption in the city is constantly increasing, and that under present conditions living in the city must continue to soar higher and higher. These consumers realize that 35 cents of their dollar to the producer and 65 cents to the middleman is not a fair adjustment. They rightly figure that they should save a part of the 65 cents and that the producer should have a share of the saving. The commission regulation is, of course, only one factor in bringing about this saving. Heretofore the commission in-

fluences have not been confronted by these consumers, but with producers and consumers working together for a just measure of relief, we doubt if the enemies of this bill will succeed in defeating it again.

Hon. Seth Low of New York, Dean Bailey of Ithaca and several members of the State Standing Cooperative Committee appeared in favor of the bills.

MEASURING HAY IN THE STACK.

1. Multiply over by base and divide the product by four; then multiply by the length of the stack and divide the product by the number of feet in a ton.

2. Add base to over, and divide the amount by four; multiply the result by itself; multiply the product by the length of the stack, and divide by the number of feet in a ton.

3. Subtract base from over and divide the remainder by two; multiply the quotient by the base of the stack; multiply this product by the length of the stack, and divide by the number of feet in a ton.

Cubic feet in a ton of hay—270 cubic feet of new meadow hay, or 243 cubic feet of hay from old stacks will weigh a ton; 297 to 324 cubic feet of dry clover weigh a ton; 512 cubic feet of oat or wheat hay, in California, are taken for a ton; government officials in the Pacific States purchase hay at the latter figure, and use rule No. 2 in measuring it.

THE ODOR OF KALE.

Californians who have had trouble feeding kale to milch cows will be interested to know that at the recent Oregon Dairy Convention, as reported by the Rural Spirit, several questions were asked and considerable discussion of kale feeding brought on. Mr. Townsend said kale should not be fed until after milking. Both the younger and elder Mr. Dickson told of their experiences. They thought kale should not be fed less than half an hour before milking. Wm. Schulmerick said the condenseries preferred the feeding of kale to silage, and Prof. Kent told how it had been fed at the college without bad results. Prof. Risser believed much of the odor produced in milk from kale was on account of badly ventilated barns; also from old, rank, or soured kale. All agreed care should be exercised in its use, and any feed that might taint milk should be fed after or during milking time, and not awhile before.

SEWAGE SLUDGE AS FERTILIZER.

In the tanks used in most sewage systems, such as have been described recently in these columns, there is always more or less solid matter known as sludge that settles and remains at the bottom. In England this has in various cities been a source of income largely as fertilizer. In one town the grease, which makes a good part of the sludge, is removed and sold for \$40 per ton, and the remainder, containing two parts out of five moisture, is sold for fertilizer at \$2.50 per ton. The removal of the grease should improve its fertilizing value in one way except that the application of the heat drives off much of the nitrogen as ammonia. In another town the sludge is heated to drive off the ammonia, which as the sulphate, is sold at about \$70 per ton. In other places the sludge is dried and without further treatment is sold for about \$5 per ton, having a value as a fertilizer three or four times that of barnyard manure.

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your live-stock

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On the other hand

THIS VINE HAS BEEN FERTILIZED

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Mushrooms and Toadstools.

[By W. A. SETCHELL, Botanist, in Circular 84 of the University Experiment Station.]

WHAT IS A TOADSTOOL?—The answer of the botanist is that a toadstool is any one of the fleshy umbrella-shaped fungi which commonly are called by that name or by the name of "mushroom." The popular desire, however, seems to be to restrict the name "toadstool" to the poisonous species and that of "mushroom" to the edible species. This is, however, very unsatisfactory, since one cannot tell, except by trial, whether a particular toadstool is poisonous or not.

EDIBLE, INNOCENT, AND POISONOUS TOADSTOOL:—A few toadstools are extremely poisonous, a considerable number are probably slightly poisonous, most toadstools are innocent, i. e., not poisonous, and some of the innocent species are edible. Edibility implies that only those innocent species which are of fair size, sufficiently delicate texture, and of agreeable flavor are to be included in the list.

HOW MAY ONE TELL AN INNOCENT FROM A POISONOUS TOADSTOOL?—The popular mind always seeks some test which may be applied. Such a test should, of course, be decisive and of uniform result. Many reputed tests pass current and are implicitly believed in by some. So far as is known there is no single test, short possibly of chemical analysis, which will give results of any value whatsoever! It may be well to mention some alleged tests in order to emphasize their unreliability and their danger.

UNRELIABLE TESTS.

1. The so-called "Silver Test" is one most prevalent. It is believed that a silver spoon or coin placed with the toadstools while cooking will demonstrate by blackening or failure to blacken whether the toadstools are safe to eat or not. It need only be said in criticism that there are both poisonous and innocent species which act alike on silver. This test is therefore of no value.

2. Some say that if the outer (upper) skin of the top of the toadstool peels off readily, that such a species is edible. It may be said that certain edible species

will "peel" and other edible species will not "peel." Some poisonous species also will "peel." So there is no reliance to be placed on this "test."

3. It is alleged that edible toadstools while raw have an agreeable flavor when tested (in minute quantities as a rule) while poisonous species are bitter or peppery, or even disagreeable in flavor. Some disagreeably flavored toadstools are innocent and even of agreeable flavor when cooked, while some others are looked upon with suspicion and reputed poisonous. The most poisonous toadstools, however, are, at least, not at all disagreeable as regards the flavor of the raw flesh. Consequently, this test offers no certain way to distinguish poisonous from innocent or edible toadstools.

4. When one breaks open a toadstool or bruises it, it may change color or it may not. Sometimes the change is to light or to dark blue, sometimes to a reddish or brownish tint of darker or lighter hue. This may or may not be significant, but it is no reliable test of a general character. In general, any decided change of color should arouse suspicion, but the lack of it gives no indication whatsoever as to the nature of the toadstool.

5. Some toadstools when broken open show a milky juice. This is usually white but may be red, orange, or blue. Some such toadstools are regarded as poisonous, others are well known to be innocent, and some are delicious eating. On the other hand the lack of a milky juice is no evidence of either non-poisonous or of poisonous character.

6. Many, if not all, toadstools are liable to be infested by insects, whose larvae are often so abundant within the plant (often without any exterior evidence of it) that the toadstools are fairly honeycombed by their ravages. Some take this as an indication of a non-poisonous nature on the part of the toadstool. Experience has shown, however, that this is not so, but that the insects attack both poisonous and non-poisonous species.

MORE CERTAIN METHODS.

There are, then, no tests to be applied with any certainty and the question still before us, is: How may one tell the poisonous from the innocent species? There are two methods.

1. By eating them! This is, however, a tedious process and one attended with more or less danger. It is not to be recommended, especially to the beginner. If tried, the following process is usually recommended. A very small bit of the raw toadstool is chewed but none of the juice swallowed. If after 24 hours no disagreeable result is experienced, a similar bit is chewed and some of the juice swallowed. If after a similar interval, no disagreeable symptoms result, a small piece may be chewed and swallowed. If nothing suspicious occurs after 24 or 36 hours, a fair quantity may be tested by cooking and eating. It is proper to warn the novice that this may be done safely only after learning to distinguish the most poisonous species (especially the species of *Amanita* mentioned later on), since of some of these it needs only a very small piece to produce serious poisonous effects.

II. By learning of the experience of others. There has been accumulated a certain amount of knowledge concerning the innocent or poisonous character of toadstools. While this body of knowledge is not complete and while there are certain parts of it about which there is lack of agreement, a considerable number of toadstools are well known to be either poisonous or edible. How then is one to avail himself of this knowledge?

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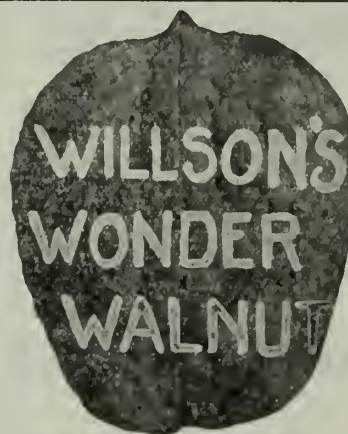
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By studying the toadstools and the various books written on the subject. Much that is reliable and satisfactory may be learned in this way. One must learn to know the various kinds of toadstools as one learns to know the ordinary plants of hill and forest and garden.

DISTINGUISHING MARKS OF DIFFERENCE AMONG TOADSTOOLS.

I. In general, each toadstool possesses an upper flattened horizontal structure which is usually called the "cap," or botanically, the "pileus," and a stalk, botanically called the "stipe." In some cases, the stalk or stipe fits into a swollen cup-like structure at the base which is called the "volva." The presence or absence of a volva is a matter of considerable importance; consequently in studying toadstools one should be careful to obtain the very base. Many toadstools have a sort of ring or collar encircling the stipe somewhere between the base and the pileus.

II. Structures of very great importance are those found on the under side of the cap or pileus. This portion of the pileus is called the "hymenium." By the difference in the structure of the hymenium, toadstools may be divided into four classes, as follows:

1. Hymenium smooth. There are not many toadstools in this group and few of them of a texture sufficiently soft to allow of eating. There are no poisonous species known in this group.

2. Hymenium spiny. These are called "Hedgehog Toadstools or Mushrooms." The species possible of being eaten are few and none of them, so far as is known, is poisonous.

3. Hymenium porose. The hymenium in the toadstools of this group is made up of closely crowded tubes, perpendicular to the horizontal diameter of the pileus, as may be seen by breaking the pileus open. It is the mouths or openings of these tubes which give the surface of the hymenium its porous or spongy appearance. There are many species in this group; some are innocent and some are poisonous. They are all to be avoided by the beginner until he has learned to distinguish them from the descriptions or pictures in the books or has had the distinguishing characters pointed out by one who is acquainted with them.

4. Hymenium made up of "gills." "Gills" are flattened, knife-blade-like structures radiating out from the center of the lower side of the pileus or cap to the circumference. Some extend from the place where the stipe joins the under side of the pileus to the circumference, while shorter ones extend from some point farther out to the circumference. By far the larger number of toadstools are of this fourth class and are called "Agarics." The Agarics are divided into 5 subclasses by the color of their spores. In order to determine the color of their spores it is necessary to remove the pileus (which should be fairly young and fresh) from the stipe and place it, hymenium-side down, on a piece of paper, preferably of a light gray, brown, or blue. It is also advisable to cover the pileus with a tumbler or dish so as to prevent too rapid drying. In from an hour to several, according to the species, the spores, which are the minute bodies from which the toadstools grow again, will be expelled from the surface of the gills onto the paper in such quantity as to indicate the color. The colors are as follows:

(a) White. The majority of Agarics are in this subclass. Those of this subclass having a cup or swollen bulb at the base accompanied by a ring half to three-quarters up the stipe are to be avoided, for these belong to the species of Amanita and some of them are among the most poisonous of toadstools. Those of this

subclass having the solid portion of the pileus thin in proportion to the gills and in which the gills are nearly all of equal length are to be avoided, especially if the top of the pileus is bright colored. Avoid also all of this subclass having a milky juice, unless the juice is reddish. Other white-spored Agarics may be eaten, at least cautiously at first.

(b) Black. Black-spored Agarics are all innocent and especially those in which the gills, when old, change into inky fluid. They are to be eaten, however, before the gills turn black.

(c) Ochre. In these the spores are yellowish or rusty brown. None of the species is reputed poisonous.

(d) Brown. The spores are dark brown or purplish brown. The common mushroom, with gills which are pink changing to purplish black, and with a distinct ring on the stipe, belongs here and is edible as are most of the species. Some, however, are under suspicion.

(e) Rose or Red. Some of the pink-spored forms are under suspicion, but those with deep red spores and a volva, but without a ring, are edible.

WHAT TO AVOID.

1. All toadstools in the young or "button" stage. At this time it is impossible to determine, except after long experience, some poisonous species from some edible species.

2. Avoid all those with pores on the under side of the cap until sufficient acquaintance teaches the difference between edible and poisonous varieties.

3. Avoid all species with gills, white spores, a ring, and a volva or bulb-like base. The most poisonous species are in this group.

4. Avoid those having a milky juice unless the milk is red.

5. Avoid those having the cap thin in comparison with the gills, especially if they are bright colored.

6. Avoid all toadstools which are not strictly fresh since decay sometimes greatly increases poisonous substances. By following these rules implicitly one may avoid the most poisonous kinds, but the novice should experiment with the greatest caution.

NUTRITIVE VALUE OF TOADSTOOLS.—In general, it may be said that even the most nutritious toadstools are of little nutritive value but are valuable as food accessories or condiments, not, in any wise, as substitutes for the meat or vegetable ordinarily consumed.

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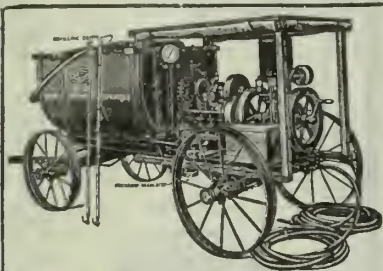
regard for the future and the natural consequence of his acts. When the farm fails to yield a revenue he sells and moves to another. The miner plows and tills the crops that he can sell to the greatest advantage off the farm, never thinking or caring for the future or the advantages of rotating, the growing of clover and turning the crop back to the hungry soil of the feeding of all crops back on the farm which produced them. The only way to do this is breed and feed live stock. Statistical information does not make the impression usually that it should, and we often fail to appreciate the full meaning and importance of a few figures when they are merely to express a per cent of increase or decrease of a certain product. This I believe is true regarding the statistics that are now being so freely used in expressing the great shortage in beef cattle. When you say that our population has increased 26% in the last ten years and that we only have four-fifths as many cattle as we had ten years ago, or a loss of 20%, the real significance of these are not appreciated. With an estimated immigration of 1,400,000 people to our shores in 1913, and estimating our natural increase 600,000 more, what provisions are the farmers making to feed this additional 2,000,000 people?

Canada, with a very short grazing season, extreme winters and the lack of corn, can never furnish us or interfere with our home market. Mexico, practically a barren waste from a revolution that has destroyed her cattle industry and is still in progress, is not holding out any hope for relief. Argentina can find a more profitable market for her surplus meat in European markets, and if this nation is to have more beef it must be bred and matured in the great corn belt States. Now is the time to buy a good Shorthorn bull and to secure the best lot of good Shorthorn cows or their grades that you can commence to grow and to send to market each year a load or more of market toppers. It is the consensus of opinion of those who are in a position to judge that in no time within the next five years will a well bred and properly fed steer at 20 months old bring less than \$100 on the Chicago market. Buy a few good cows now, reduce your farm expenses by cultivating less, grow more pasture and mature all the cattle you breed by feeding the grain you produce on the farm, thereby increasing the fertility of your farm and your animal profits. Never in the history of our country did the future hold out such prospects as at present for those engaged in the production of prime beef.

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Starting With Hogs.

Newton H. Peer gives the Rural Spirit an outline of suggestion and exhortation in connection with beginning with pure bred hogs:

THE STOCK.—Having decided upon blooded stock, a modest beginning will doubtless consist in the purchase of a sow or two already bred. Unless several sows are procured at the outset, the purchase of a herd boar should be deferred until after the first litter, thus rendering the boar eligible for service not only upon the original dam, but her gilts as well. The foundation of the herd thus formed should be selected with the most careful judgment. If the new breeder be unacquainted with the favorite strains of the breed, as is most likely to be the case, his safest way is to place himself in the hands of some older breeder, the reputation and standing of whom, and whose stock is such as absolutely guarantees the conscientious and capable fulfillment of the order. If the buyer makes his own selections, he should insist upon getting "some pig, as well as pedigree." As a matter of fact, no individual hog should be so attractive as to warrant its purchase, unless its ancestry traces to those that have a recognized standing in the history of the breed. The best is none too good; and while this does not necessarily imply that extravagant prices must be paid for fancy individuals of show-yard quality, it does mean that no beginning is warranted except with good specimens, of breeding lines that have been proven to be popular and profitable. "Like begets like," in hogs as in every other form of life; and little satisfaction or success is likely to come to the man who builds his herd upon the foundation of an indifferent or obscure breeding.

FARROWING.—The sow should be selected from a large, strong litter, and from a dam whose disposition and characteristics constitute her a good mother. While we frequently read extended descriptions of what an ideal sow should be like, I think it can be well summed up by saying that she must be long and broad from end to end, it being very essential that her loins and hams carry the same width as

her shoulders; she must be deep from her slightly arched back to her belly line; she must stand on good feet and legs, with ample bone to safely carry a heavy body. Particularly in Berkshires, the ideal show hog has certain prescribed qualities of head, face, ears, markings, etc., and while it affords the greatest pride and satisfaction to the breeder who is fortunate enough to produce a pig carrying all these various fine points, it is far more important to produce a pig that will, with proper care and feed, seasonably result in a large, strong, smooth hog of finest quality of meat.

A sow at breeding time should be in the best of condition, and if a gilt, should thereafter be kept growing nicely, or if a matured sow, should be made to well hold her own. Bred sows should not be allowed to become too fat, as it is likely to produce trouble at farrowing time, and besides, weakened litters are almost sure to result. Plenty of exercise is another essential item in a bred sow's diet. Her rations, particularly a short time before farrowing, should be milk-producing, so as to properly prepare her for her coming youngsters.

TAMING THE SOWS.—It is well for the herdsman to get into the pens and be with the bred sows considerably, always treating them with greatest gentleness. The kindness thus shown will relieve the sows of fear or restlessness, if at farrowing time it becomes necessary for the herdsman to assist them. The farrowing pen should not be over-bedded, for there is thus afforded an opportunity for the pigs to burrow, increasing the danger of their being crushed by the mother. A projection about eight inches wide from the wall, and a like distance from the floor, is always a cheap and simple way of saving many pigs from being laid upon. A little warm water with a slight amount of bran or shorts added, is all that should be given the sow for the first twenty-four hours after farrowing. Thereafter her feed can be increased gradually for ten days, when she should be brought to a full feed, which should be calculated to make milk. As far as possible, the breeder should raise his own feed, for otherwise much that should be profit will go to pay for high-priced millstuff. If one raises wheat and is located near a mill, he can readily secure bran and shorts. Otherwise crushed wheat and rye well soaked, but not fermented, make a most excellent feed. If milk can be had, it should always be fed, regardless of what else is used.

HANDLING THE PIGS.—When the pigs are three or four weeks old, they will begin to eat some with the mother, and should then be provided with a small trough, so arranged that they can feed without molestation from her. The pigs should be weaned at six to eight weeks' old, and, if available, the extra milk ration, which should be started just before weaning, should be liberally continued, so that no break in the progress of the pigs' growth will be caused by the weaning. The practical breeder while raising his pigs will ever have in mind that they are destined to be breeding stock, and will accordingly so feed and care for them as will best stimulate and bring forth their reproductive qualities. They should not be crowded with too much fat-producing food, and in this connection I might say that buyers are frequently too anxious to secure great weight in young breeding stock. This is desirable only in show hogs. One should not choose the young sow or boar made heavy by too much fat, but rather one of large frame that has had an all-round steady, healthy growth and development.

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The Holstein-Friesian at Home.

The British Holstein Cattle Society recently visited the province of Friesland, part of Holland, which seems to have been the native country of the breed. The cattle were famous in the time of Caesar, and mention of them may be found in the writings of Tacitus. From this small area they have spread all over the globe. In America the Holstein-Friesian Association has registered over 225,000 head; in South Africa, where they are known as Friesian, fresh blood is continually being imported for improvement of the breed and crossing with the native cattle; in New Zealand, famous for its dairying, they find great favor, and they have been imported into Australia, South America, Austria and Japan.

Twenty members of the society landed at the Hook of Holland early on Monday, the 26th of August, in a drenching rain. The downpour did not however entirely obliterate the flat landscape, and we were able, thanks to the leisurely progress of the Dutch trains, to take in fairly well its chief features—the rich pastures on heavy clay soil, divided by innumerable dykes into sections of 2-10 acres, the windmills continually pumping out the dykes, the neat homesteads, dwelling house and cow byres and barn all under one roof, and thousands of black and white cattle dotted over the pastures. It was curious to see how the latter improved in size and marking the further north we went. Spottiness, blazes right down the face, pink and black muzzles disappeared; and as we approached Leeuwarden the uniform type was a large-framed animal with black neck, head and muzzle, white star on the forehead, large patches of black and white with even margins on the body, black on the hind-quarters and upper half of the tail and four white legs or feet.

Shortly after our arrival the rain ceased, and we were able to inspect in comparative comfort some 500 head of this noted breed tied up for exhibition in the paved market place. And a grand show they made, of such uniform good quality that we began humbly in our minds to go over the many members of our own herds that we now, for the first time, realized would have to be weeded out. The massive bulls seemed to be as quiet as the cows. They were led in and out of the crowd for the most part by an ordinary halter, and where one was occasionally held by a staff the crowd

respectfully fell back, judging that here at any rate dangerous temper lurked. A magnificent old bull of eleven years was champion, not for the first time in his life by any means, and he is said to have fathered more prize stock than any other bull in Holland. And a few days after the show he would be found quietly tethered on his pasture by a slender rope.

In spite of the heavy showers, the sun shone at intervals, and we were able to visit certain noted farms in the neighborhood. The farms vary in size from about 60-200 acres: about one-third is grazed, and the rest cut for hay as many as three times in the season, and perhaps ensilage made as well. On one farm, 65 cows, 25 yearling heifers, 3 service bulls and 45 calves, as well as about 50 sheep and lambs and 6 horses, were being maintained on 187 acres. Such land commands a high rent, generally about £5 an acre. The sheep are a milking breed, and the milk is used in the rearing of calves. The cows are wisely milked at equal intervals, 4 a. m. and 4 p. m. The milk is weighed and tested for butter fat by a certificated milk controller once a fortnight. The milk is mostly sent to a local co-operative butter or cheese factory, where the milk is paid for according to the percentage of butter fat. The farmer gets back gratis 70 per cent of the whey and 12 per cent of the butter-milk.

The cows are kept entirely indoors from the beginning of November until early in May when they are turned out to grass. In the winter they get plenty of hay and various meals—barley, linseed-cake, cake and soya bean. In summer they obtain grass only. Calves are taken from their dams immediately after birth. For the first three days they are fed three times a day with the dam's milk, afterwards twice a day till they are three weeks old. Later on butter-milk and whey are added and finally the time comes for pasture only.

The cow houses seen were mostly of the older type with a low roof necessitated by the immense store of hay above, which is all one with the hay stacked on the ground floor of the barn. The cow house is really a room of the dwelling, and is kept as spotlessly clean as any of the latter. Its windows even are decorated in the same manner with small muslin curtains tied up with ribbon. There is generally a window into the cow house from the bedroom of the farmer, so that if anything goes wrong in the night, in a moment he can see what it is. At the time of our visit the cows were all out, but it seemed to us that in the winter when the byres were full they must be hot and insufficiently ventilated. Also the gutter seemed unnecessarily deep, though not dangerous, as one rope prevents the cow going too far forward and another prevents her slipping back into the butter below. In the newer buildings the gutters are not so deep, and the roofs were far more lofty, as the hay was not stacked above but conveyed to the cows by a tram-line down the center of the shed.

At one farm specially famed for its fine herd, the cows had averaged over 1,000 gallons per cow per annum for twenty-five years and the butter fat 36 per cent. This is sufficient testimony that large quantity does not imply bad quality, and that the milk of the Dutch cow is not so poor as is often supposed. Probably the fact that the milk is unusually white has given rise to this popular fallacy, but the whiteness is due to the extreme smallness of the fat globule, and it is this same smallness of fat globule that renders the milk so easily digestible, and therefore, valuable for infants; and also specially suitable for the manufacture of cheese.

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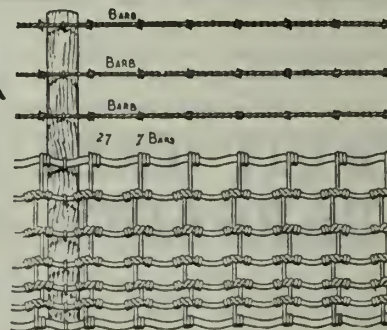
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Pure Breds and Grades for the Dairy.

President Shrock of the Oregon Dairymen's Association at the last convention of that organization made an annual address which was certainly not dull—to say the least of it. A part of his talk was about pure bred and grades in this way:

"I wish at this time to congratulate the breeders of pure bred dairy cattle of our state in their success in placing their animals in the advanced registry. This shows true dairy progressiveness. Only a few years ago but one breeder in the state made any effort to provide his customers with authenticated records of production. From all other herds bull calves were purchased without any knowledge of their female ancestors' production. Now nearly every breeder of any note has the major portion of his

herd under authentic records, and some of these records show that we have some wonderfully productive cows from which to choose bull calves to head our herds. The distribution of these bull calves, however, among the herds where they will do the most good is a difficult problem. I wish that our Breeders of dairy cattle had the skill to make sales like our stallion importers have. I cannot say that I would have them employ the same methods, but I would like to see similar results. A good stallion salesman will make a sale in any community where a stallion is needed, it matters not whether the people wish to buy. If good bulls could be so placed, the scrubs that are now at the head (or rather the foot) of our dairy herds would stampede the bologna factories at once, and in a few years the cream checks would grow larger per cow. Besides the man who comes from Idaho or some other section for a carload of dairy cows, would not have to be satisfied with a mixed bunch with no two cows resembling each other. A uniform carload will always bring from \$10 to \$20 more per head.

"There are 612 pure bred stallions in service in Oregon. These represent an outlay of about \$3,000 each or nearly \$2,000,000. There are 19,000 dairymen in Oregon. These 19,000 include every farm from which milk or cream is sold, many of them with but two or three cows. If a similar sum of \$2,000,000 were invested in bulls it would allow an investment of more than \$100 for every farmer with cows. Only about one-third of these 19,000 dairymen own bulls at all. The other two thirds use their neighbor's sire. This would allow over \$300 each for bulls to head our herds. And it must be admitted that good bulls can be bought for that sum, bulls from cows with authentic records of from four to six times the production of the average cow. What a wonderful thing it would mean to the dairy interests of Oregon if the same sum were judiciously expended in bulls as is now invested in stallions!

"While I have always been an enthusiast on the bull question I have never been in sympathy with the idea so often advanced that every dairyman should have one or more registered cows. Good grades are just as good producers. This is no discredit to the pure breeds—rather to their credit. It has been stated that pure breeds are no more expensive, aside from the first cost, than grades. This is disproved by the fact that every breeder of pure bred stock who makes a success of it does actually give more care and attention to his stock than any breeder of grade stock does. The price of a good sire is within reach of practically every dairyman. This will give him an opportunity of rearing good grades. If the average dairyman wishes to go further and invest in registered females, the chances are ten to one that he will get the cheaper ones, hence the poorer producers. First-class grades are better than third or fourth class registered ones. Furthermore I believe that only a very small per cent of the livestock breeders of whatever kind are qualified and adapted to breed pure bred breeding stock. It requires courage, rare good judgment, absolute honesty, an insatiable longing for the work, a thorough knowledge of the breed, including each family or strain of the breed, and if one is to make a success of it he must be a good salesman.

"So if we discontinue advocating the pure bred females for every dairyman and put that much more force behind the movement for better grades we will be doing greater good to the greatest number."

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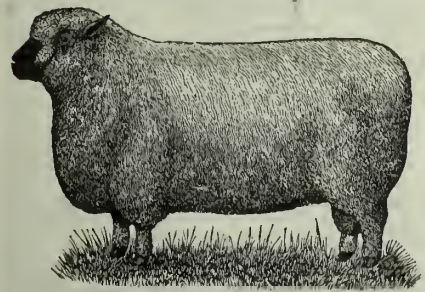
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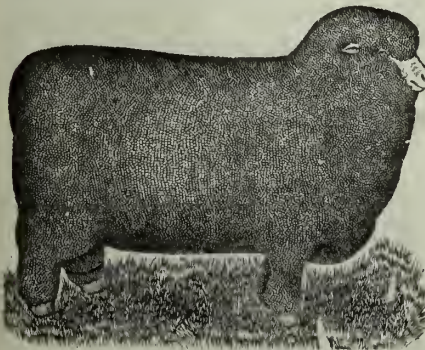
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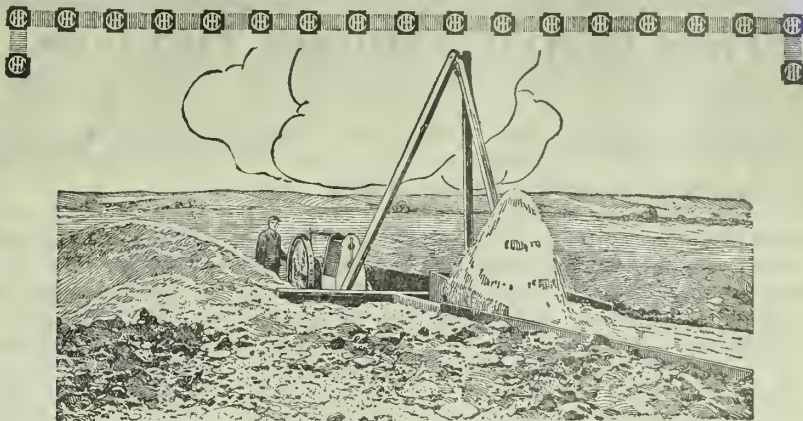
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Prices of Army Horses Too Low.

Henry Fairfax, president of the American Hackney Horse Society, and a member of the Government purchasing board for the selection of thoroughbred stallions to get cavalry horses, as reported by the Breeder and Sportsman, believes the solution of the army remount problem in this country and elsewhere lies in the fixing of prices for horses bought for the army. Mr. Fairfax said recently that he did not believe the Government could succeed in inducing farmers to breed horses for the army at anything like the present prices.

"Under existing conditions in agriculture there is no use in counting on farmers east of the Missouri river to raise horses for the army at \$150 or even \$200 each," he declared. "They can make more money raising something else. You may even provide them with good sires at nominal stud fees, as the Government now purposes doing, but unless you can show them a fair and reasonable profit to be made by breeding their mares to these Government sires and selling the colts to the Government, they are going to keep on using Percheron, Clydesdale or hackney sires and breed for the open market, where they can expect a better price than the Government pays."

"I have been breeding hackneys and thoroughbreds for twenty-five years at Aldie, Va., in a country admirably suited to horse-raising, and I undertake to say that no man can put his sound, straight four-year-olds, such as the Government buyers want, on the market at a profit for much less than \$300. Big cities, I believe, pay more than that for police horses, yet the War department gives only a little more than one-half as much for cavalry horses. The price is much too low, and until it raised materially, no one can consistently wonder that our troops are mounted on horses which would hardly do credit to a third-rate South American army."

MAKING THE BEST OF THE TARIFF OUTLOOK.

Jacob F. Brown advises the American Sheep Breeder to take courage. He says: Notwithstanding recent events, I am as much as ever a sturdy Republican, with a strong belief in the principles of protection. I am not expecting, nor do I believe, that now the government is about to be turned over to the Democratic party we shall enter into a period of depression as a result. I have confidence that the Democratic leaders will prove to be capable, wise and good Americans, and that the coming administration will be sane and conservative. I do not look for radical tariff legislation, but expect a proper consideration will be shown to those who have made investments under existing laws. The utterances of President-elect Wilson, prior to his election, and those of other Democratic leaders, do not to my mind portend dire results. The Senate is certainly so evenly divided as to prevent radicalism. The popular vote cast for Mr. Wilson was some two hundred and forty thousand less than that cast for Mr. Bryan four years ago; practically two million more votes were cast against Mr. Wilson than for him. There is no great popular majority demand for radical Democratic legislation. The Democratic party naturally wishes to so conduct itself that it may continue in power and with a large majority of the voters of the country lined up against it, the tendency toward experimental legislation is bound to be held in check.

The present tariff can be reduced, in some cases materially, without endangering capital or labor.

The next year or two years are bound

to be periods of adjustment with very many difficulties ahead for the manufacturer, the wool grower and the wool dealer.

It is my advice to the wool grower to go ahead and do the best he can under whatever conditions he may find for the next two years, then at the end of that period if prices for wool and sheep are not sufficiently high to be fairly remunerative, he can take such action as he may deem wise. This policy seems to me to be the sanest and safest one to pursue. It pays better in every way to be an optimist than a pessimist, and one should always bear in mind that many of the troubles we look forward to never happen.

SHEEP FOR THE PANAMA-PACIFIC.

The Wyoming Wool Growers' Association urges the State legislature to appropriate not less than \$25,000 for live stock exhibits at San Francisco. Every western State should give not less than \$25,000. If eastern States, like Ohio, Michigan and Illinois do not appropriate \$50,000 each, our foreign friends will think the United States are a pretty stingy collection of people. The live stock department was the first to receive a liberal appropriation, and the San Francisco directors hope to receive at least half a million dollars from the various States to help make the Golden Gate show the biggest ever. "Now, Mr. Sheepman," says the American Sheep Breeder, "your legislature is in session. Get busy with your assemblymen. Tell them to fight for a good, big appropriation. This is not a California show, it's an international show run by American people. If the sheepmen fall down the Australians will poke a lot of fun at us, for they are coming over 'with the goods.' Chief Lively plans to have sheep from Europe that will double discount the St. Louis attraction. If you've got a spark of patriotism in you, peel off your coat and hustle."

WHEATLEY'S SHIRES.

Apropos of the announcement that world's records for prices of draft stallions of less than full age had been broken at a recent Shire sale is the fact that a foal is soon to come to California that will be a half brother or sister to this stallion, Champion's Goalkeeper, as in the recent importation of Shire mares made by Henry Wheatley, Napa, a mare that is in foal to the sire of this stallion, Childwick Champion. It is a matter of congratulation that California is getting draft mares and stallions of such breeding and value. A group of these imported draft mares is shown in our last issue.

The fine draft stallion, Neuadd Hillside, whose likeness adorned a RURAL PRESS of last September, has been sold recently from the Wheatley farm. Jack London was the purchaser. He seems to be bound to make as much of a success in farming as he has in journalism.

CARBON BISULPHIDE FOR MOLES.

To the Editor: Referring to the inquiry in your edition No. 9 of March 1, 1913, where you declined to name a poison for moles, please be advised that moles can be exterminated in the same manner as ground squirrels and gophers with the aid of carbon bisulphide. Please inform Mr. R. C. of Corcoran accordingly.—H. E. S., San Francisco.

[That is true; if you can get the fumes through the long runways of the moles, it will do them up.—EDITOR.]



Shires Stallions and Mares

I have still on hand a few extra good draft stallions. They must all be sold this spring to make room for a new importation, and therefore I am offering them at very low prices.

WRITE OR CALL

HENRY WHEATLEY, Salvador Stock Farm
NAPA, CAL.

Registered Percheron Stallions For Sale

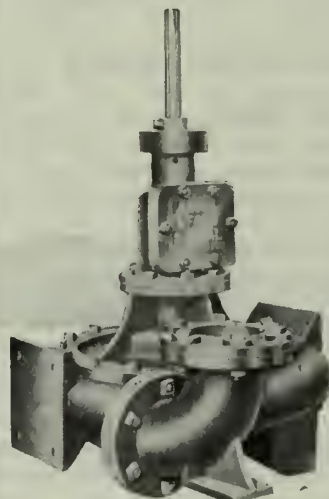
ONE GRAY FOUR-YEAR-OLD. State certificates of Soundness.
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Both won first in their classes at Hanford and Fresno Fairs.

ALSO HOLSTEIN-FRIESIAN BULLS. from two years old to crating size.

Prices low owing to owner's illness. Send for list.

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The Krogh New Water Balanced Vertical Pump contains many new and valuable improvements, same being fully explained in our Bulletin R-10, which will be mailed upon request.

We have a branch in Los Angeles at 206 N. Los Angeles Street.

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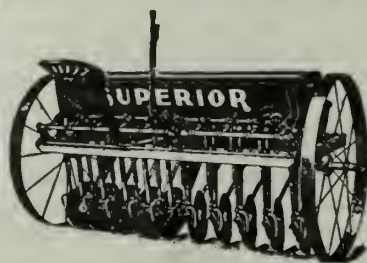


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San Leandro, Cal.

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Send for Circular on Special Alfalfa Drill. Seed costs money—a Drill will save its own cost.

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FARM BOOKS.

The following list of farm books are kept in stock and will be mailed on receipt of prices quoted:

Farm Development, Hays.....	2.00
Manual of Laws.....	2.25
Farm Buildings.....	2.20
Breeding Farm Animals, Marshall...	1.60
Hog Book, Dawson.....	1.60
The Dairy Farm, Gurler.....	1.10
Greenhouse Management, Taft.....	1.50
Mushroom Culture, Falconer.....	1.50
The Study of Corn, Shoemaker.....	1.50
The Hop, Myrick.....	1.50
Meadows and Pastures, Wing.....	1.50
Trees and California, Jepson.....	2.50
Asparagus Culture, Hexamer.....	.50
New Onion Culture, Greiner.....	.50
American Cattle Doctor, Dadd.....	1.00
Home Pork Making, Fulton.....	.50
Farm Gas Engines, Brate.....	1.10
The Book of Alfalfa, Coburn.....	2.00
Swine in America, Coburn.....	2.50
Feeds and Feeding, Henry.....	2.25

Send remittances to
PACIFIC RURAL PRESS,
420 Market St., San Francisco.

Peculiarities of Sheep.

Not the least curious of all the habits which sheep have, says the Adelaide Observer, is that of each individual travelling in a line (as though a race) imitating the actions of the animal immediately in front of it. When traveling, sheep string out more or less in single file, and if the leader gives a leap over some supposed obstacle, every sheep in the procession will repeat the action, whether the obstacle exists or not.

Antics of this description must have a reason, however comical the result to which they lead on market days in up-country townships, and the chances are that it is the reproduction of some early trait in the breed, to a time when safety of all depended upon the initiative action of the leader.

Thus, if the leading sheep came to some opening in the ground, or a fissure in the rocks, it would jump across. The sheep immediately follow, with its head almost on the rump of the one in front, would repeat the action, and this would become automatically transmitted down the whole line, and thus enable the lot to cross the danger spot in safety. Accuracy and precision of such imitative power would not take long to acquire. There are numerous traits about sheep of which few who make their living among them take any notice, and it is the exception to come across those who can even tell one regarding what has come under their own notice.

I know one man in Tasmania who has pointed out to me how at the approach of bad weather a general move will be made by each flock towards high ground, and if there be a hill in the paddock, the lot will ascend it; also, how they choose as a camping ground for the night some place which receives the last rays of the setting sun. Much escapes the notice even of drovers unless they are exceptionally observant men.

Why does a sheep stamp when in danger, such as in the approach of a dog, threatens? For what better reason than to transmit some distance along the ground a warning signal to other members of the flock?

HORSE WITH ITCH.

To the Editor: Would you kindly let me know through the medium of your valuable paper, what the trouble is with my horse and what to do for him? For about a year he has been itching so badly that he has rubbed off all the hair on certain parts of his body. Lately he bites his tail. I have heard of horses having the skin of the tail grow tight to the tail. Is there any truth in this? I keep my horse very clean. Ever since I noticed he had that terrible itching I washed him with sheep dip frequently; in fact, I have been scrubbing him all over, but nothing seems to do good.—SUBSCRIBER, Roseville.

ANSWER BY DOCTOR E. J. CREELY.

Whitewash the stall once weekly, scrub the harness, brushes, combs and every stable appliance that he has come in contact with. Don't use the same appliance on other animals that you use on this horse. Use the following mixture once daily on affected spots:

Milk of sulphur.....	4 ounces
Tincture iodine	4 ounces
Turpentine	4 ounces
Kerosene	16 ounces
Cottonseed oil	120 ounces

Report in 30 days.

San Francisco Veterinary College.

UNIVERSITY BUTTER SCORING CONTEST.

The report of first entry, fifth year, scored February 25, 1913, at the University Farm, Davis, California, is as follows:

Buttermaker.	Creamery.	Score.
Victor Baciaroni, Suisun.....		94½
W. D. Bailey, Los Angeles.....		94
L. B. Gurney, University Farm.....		93
P. M. Becker, Grizzly Bluff.....		93
Peter Petersen, Sunset		93
Glenn E. Smith, Red Bluff.....		93
E. D. Curl, Cal. Polyt. School.....		92
Hans L. Beck, Danish		92
George Geckler, Cottonwood		92
Richard Nelson, Jacinto		92
M. G. Johnson, Red Bluff.....		92
Arnold Madsen, Salinas		91
J. C. Phillips, Delta		91
J. W. Smith, Western Yolo Creamery & Ice Co.....		91
W. A. Peterson, Ceres		91
L. H. Lauritsen, Wood River.....		90

DISINFECTING WHITEWASH.

An excellent disinfecting whitewash may be made as follows, for use in disinfecting stables, hog pens, etc.: Slake 25 pounds of fresh lime in sufficient water to make a paste, sprinkle in 15 pounds of flowers of sulphur, add 30 gallons of water, and boil for an hour. Then add enough water to make 50 gallons, and apply with a spray pump, using a "Bordeaux" nozzle.

America's Leading Horse Importers

Kansas City, Missouri

Oakland, California



We have just received at our stables in Oakland a large importation of prize winning Percherons. These stallions comprise nearly all of the leading winners at the recent French shows, every animal at maturity weighing much over a ton, and they are strictly stallions of the well known McLaughlin type. We import more, sell more, and therefore can sell cheaper than anybody else.

McLAUGHLIN BROS.

Stables: At Cor. 47th and Salem, in Emeryville, Oakland, Cal.

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RANCHOS DOS RIOS, breeders of registered Jersey cattle. Oldest and largest herd in California; established 1868. A few young bulls from best cows in herd ready for delivery. Address R. E. Watson, R. No. 2, Modesto, Cal.

JOHN LYNCH, breeder of Registered Short-horns, milk strain. High class stock. First-class dairy breeding. Smooth cattle. Best pedigree. P. O. Box 321, Petaluma, Cal.

T. B. PURVINE offers for sale a few nice registered young Jersey bulls and bull calves out of fine cows. Petaluma, Cal. R. F. D. 4, Box 195.

REGISTERED Short-horn and Registered Holstein bull for sale. A. Balfour, 350 California St., San Francisco.

H. N. LOCKE CO., Lockeford, Cal.—Choice young Jersey bulls and bull calves from prize winners and producers.

CHAS. N. ODELL, Waukegan herd of registered Jerseys. Correspondence solicited. R. No. 5, Modesto, Cal.

MINOR & THORNTON, Breeders of Reg. Holstein-Friesian cattle. Kearney Park P. O., Cal.

REGISTERED JERSEY CATTLE.—Young stock for sale. W. J. Hackett, Breeder, Ceres, Cal.

BEEF CATTLE.

SHORT-HORNS AND BERKSHIRES—Practical excellence and show qualities. Rookwood Farm, Ames, Iowa. C. F. Curtis, Prop.

SIMON-NEWMAN CO., Breeders of Registered Herefords. R. M. Dunlap, Manager, Newman, Cal.

SHORT-HORNS—Ringmaster at head of herd. White & Smith, St. Cloud, Minn.

SHORT-HORNS—Villager heads the herd. D. R. Hanna, Ravenna, Ohio.

T. B. GIBSON, Woodland, Cal.—Registered Short-horns and Poland-Chinas.

HEREFORDS—Fairfax Perfection heads herd. J. P. Cudahy, Belton, Mo.

HEREFORDS—Gay Lad 6th heads herd. O. Harris & Sons, Harris, Mo.

HORSES AND MULES.

REGISTERED PERCHERONS FOR SALE—Send for list to owner. All acclimated. Two gray stallions matured. State certificates of soundness. One 2-year-old black stallion. One white brood mare. Four black brood mares. Prices low owing to owner's illness. Send for list. M. E. Sherman, R. R. 6, Box 86, Fresno, Cal.

PURE-BRED REGISTERED PERCHERONS AND BELGIANS. A few choice young stallions from three to five years old, also two and three year old fillies for sale. Los Altos Stock Farm, Los Altos, Cal.

30 HEAD of yearling and two-year-old mules for sale. Trim mares, weighing around 1400, and 1250-lb. Jack. Karl T. Romie, Soledad, Monterey Co., Cal.

REGISTERED BLACK PERCHERON Stallion, Joaquin, No. 77186; three years old next April. Price reasonable. F. S. Israel, Linden, Cal.

BIG BONED BREEDING JACKS for sale. Jas. W. McCord, Hanford.

RUBY & BOWERS, Davis, Cal.—Registered draft stallions, all breeds.

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BERKSHIRE SWINE

Boars, all ages, for immediate delivery. All stock fully guaranteed and registered. Money back if you are not fully satisfied. SWINELAND, Box 161, Yuba City, Cal.

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REGISTERED BERKSHIRE SWINE—Best Eastern strains; bred sows and spring pigs for sale. A. B. Humphrey, Mayhews, Sacramento Co., Cal.

REGISTERED DUROC JERSEYS—No better anywhere. Boars, sows and young stock for sale. Immediate delivery. Jno. F. Daggs, Modesto, Cal.

MULEFOOT HOGS—Prolific, easy feeders, very prepotent. Young stock eligible to entry; also a few grades, cheap. Edouart Bryant, Lemoore, Cal.

REGISTERED POLAND-CHINA SWINE—Prize winners, finest stock in State. \$30 up. M. Bassett, Hanford.

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POLAND-CHINAS; large type. The Brown-ing Stock Farm. W. H. Browning, Woodland, Cal.

GEO. V. BECKMAN, Lodi, San Joaquin Co., Cal. Registered Poland-China Hogs, both sexes.

POLAND-CHINAS—Medium type. Fine young stock for sale. W. Bernstein, Hanford.

KNOB HILL STOCK FARM—Reg. Poland-China swine. A. M. Henry, Farmington.

CALIFORNIA NURSERY CO., Niles, Cal. Breeders of Thoroughbred Berkshires.

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SHEEP.

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FOR SALE—Fine Holstein cattle and Berkshire boars; all subject to registry. Geo. C. Roeding, Fresno, Cal.

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For —It is penetrating, soothing and healing, and for all Old Sores, Bruises, Wounds, Felons, Exterior Cancers, Boils, Corns and Bunions. CAUSTIC BALSAM has no equal as a Liniment.

We would say to all who buy it that it does not contain a particle of poisonous substance and therefore no harm can result from its external use. Persistent, thorough use will cure many old or chronic ailments and it can be used on any case that requires an outward application with perfect safety.

A Perfectly Safe and Reliable Remedy for Sore Throat, Chest Cold, Backache, Neuralgia, Sprains, Strains, Lumbago, Diphtheria, Sore Lungs, Rheumatism and all Stiff Joints.

REMOVES THE SORENESS—STRENGTHENS MUSCLES. Cornhill, Tex.—"One bottle Caustic Balsam did my rheumatism more good than \$120.00 paid in doctor's bills." OTTO A. BEYER. Price \$1.50 per bottle. Sold by druggists, or sent by us express prepaid. Write for Booklet R. The LAWRENCE-WILLIAMS COMPANY, Cleveland, O.

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Cost only half as much as the milk raised calves. Increase your profits by using

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The perfect milk substitute—the best since 1800. Write today for free book, "How to Raise Calves." Your name and address on a postal is enough.

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How to Get Show Sheep.

Robert Blastock writes for the American Sheep Breeder his ideas of the man who will secure the best results at the shows with the kind of sheep he believes in.

He has a natural liking for sheep, is a good judge, thoroughly understanding the true type and breed character down to the smallest detail, of the particular breed he favors, not thinking he knows it all, but ever realizing there is something yet to learn.

His interest is centered in his sheep. He keeps a private mental flock book and through it knows just what his flock is doing.

He studies individuality before pedigrees. He knows his flock is not perfect and that to improve it great care on his part is necessary.

SELECTING STOCK.—In selecting his foundation for next season's lamb crop, type and breed character are his first consideration with an eye to general conformation and constitution.

While selecting his rams he is doubly cautious, knowing that the quality of the lamb is to a very great extent dominated by the quality of its sire.

He studies his individuality and pedigree side by side, for uniformity of type is what he is after, and, to insure getting it, he knows that steady and persistent line breeding is the only safe rule to follow.

He will avoid breeding from males and females possessing similar defects in conformation, knowing that defects are more easily transmitted to their offspring than good qualities. Between breeding and lambing season, he will see to it that his flock has proper and sufficient exercise, with dry and comfortable quarters during inclement weather. He knows what a balanced ration for in-lamb ewes should consist of and feeds it. The care of this man's lambs commences before they are born. For he knows that no special care or treatment of the ewe after the lamb is dropped will make up for poor treatment and feeding before.

CARE.—With him feeding and breeding are closely allied. He makes preparation for lambing well ahead of the season. His barns are whitewashed and disinfected, separate folds are prepared with smaller pens for the one ewe and her offspring, the whole is bedded with clean dry straw, remembering that comfort to the flock means profit to the owner. His medicine chest receives due attention. It is replenished with many little needfuls. The loss of a lamb to some shepherds is of little consequence, but to this man it is of as much importance as some adult member of the flock.

He attends to every detail; is careful, observant, cautious, knowing that a successful lambing season depends upon his management, and that kindness to his flock means profit to the owner. He glories in a big crop of strong, healthy lambs fully as much as he does winning honors in the show yard.

LAMBING.—A week or ten days before he expects his first lambs to come he will pick over his ewes due the first week, in the daytime keeping them in a nearby lot, and at night in suitable quarters as near to his house as he conveniently can. He has the full confidence of his flock, before entering their fold, be it day or night, they will hear his voice. Strangers, whether men or dogs, will receive a poor welcome. The lambing time is at hand. He is not hustling about worried and excited, thinking of the things he has left undone, and things he ought to have done, but is ready, knowing when a ewe needs a little help, knowing he must not interfere until his hands have been thoroughly disinfected. To him the inside of a ewe

is an open book, his hand is guided by touch, a hind leg is not mistaken for a fore. His finger nails are short, doing no internal injury. When the lamb is born, he will see that it receives nourishment, and at the same time clip away any unnecessary wool or dirt tags around the mother's flanks and udder. He is constantly on the lookout for any signs of sickness in his flock, separating out any individuals that need special care or treatment.

He is a better doctor than the average veterinarian, for he has made a special study of sheep, in health and sickness. Every ewe in the flock that lambs will be made to raise a lamb. If through some cause or other she loses her own one will be transferred from a mother of twins to her, and she will be induced to adopt it as her own.

GRADING.—As the lambing season progresses he will keep ewes with lambs of one age in a flock to themselves, and as these youngsters are old enough to take all the milk their mother is providing he will change the ewes' rations somewhat, feeding with a view of stimulating their milk supply, all the time endeavoring to feed the lambs through their mothers as much as possible, knowing that milk, milk, milk, and plenty of it, raises the strongest and healthiest lambs. He will dock and castrate (if other than a ram breeding flock) at an early age, and as these babies grow and their little systems get stronger, he will introduce a crup into the fold, allowing them a light ration of easily digestible food, at regular intervals, by this means retaining their baby fat, and keeping them growing, for he is alive to the fact that good sheep cannot be raised from poorly taken care of lambs.

FEEDING.—He is daily studying their appetites and remembering it is not the amount of food given so much as the amount assimilated that brings the desired results. His aim is to produce bone, muscle and growth, rather than fat. His ewes are giving every drop of milk that a balanced ration and attention to detail will produce. The lambs are growing fast, having the run of a fresh fold of rye (or some other suitable forage crop), every day each one is eating a little trough feed, and in his place at meal times. Our ideal shepherd knows that weaning time is one of the most critical periods in the life of the lamb, and for this period is growing some suitable forage crop knowing that unless he is very cautious a serious checking in growth will occur. When weaning time comes he quietly and carefully separates the ewes from their lambs, removing the ewes out of hearing into some distant pasture where feed is not so plentiful. Heavy milkers are given attention and not allowed to suffer. The lambs are allowed a fold on one of the special crops, taking delight in this new feed and missing their mothers hardly at all.

FITTING FOR THE SHOWS.—After a few days, when all is quiet again, the ram lambs are separated from the ewe lambs and from now on constitute two separate flocks. Through summer, autumn and early winter many different crops will be introduced, frequent change being the delight of these youngsters. Whatever crop is in use a fresh fold will be given every morning. No chance for the stomach worm, is there. Shade, salt and fresh water in abundance are all available, together with a little trough feed which gets less and less as the hot weather approaches. If he is intending exhibiting a flock, his candidates for honors have been selected as far ahead of the appointed time as possible. Not just the exact number he is expecting to

DE LAVAL CREAM SEPARATORS

No Excuse for any Cow Owner Being Without One

There is no reason why any cow owner who sells cream or makes butter should be without a cream separator and there is no excuse why he should not have the best separator.

Any creameryman or experienced dairyman will tell you that a good cream separator will give you a great deal more and a great deal better butter than you can make with any gravity setting system, and equally, of course, more and better cream, if you are selling cream.

The DE LAVAL is acknowledged by creamerymen and the best posted dairymen the world over to be the "World's Standard" and the one and only separator that always accomplishes the best results possible and always gives satisfaction.

You cannot make the excuse that you can't afford to buy a De Laval, because it will not only save its cost over any gravity setting in six months and any other separator in a year but is sold either for cash or on such liberal terms that it will actually pay for itself.

A little investigation will prove to you that the truth of the matter is that you really can't afford to make cream or butter without the use of a DE LAVAL cream separator.

The nearest De Laval local agent will be glad to demonstrate this to your own satisfaction, or you may write to us direct.

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YUBA HIGH GRADE IRRIGATION PUMPS

Direct connected or belt driven. We build pumps varying in size from two inches up.

Special features to reduce operating costs worked out in the field. DURABILITY, EFFICIENCY, ECONOMY. Write us for particulars and prices.

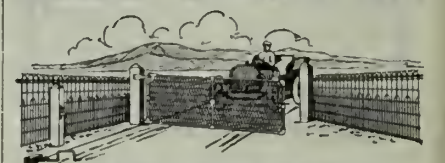
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Works, Marysville, Cal.
311 CALIFORNIA STREET, SAN FRANCISCO

show, but reserve animals of every age. The rations to produce the desired results in each class will vary according to the age and condition of the candidates selected. Each animal will be trained to lead and stand out as he should when on exhibition. By degrees he will trim their fleeces into shape, so that when the date of the first show arrives, he is ready. He will have his sheep in the show ring on time, and on whatever animal the blue ribbon is placed there and then you will not hear his opinion.

He is humble in success and patient in disappointment, always a gentleman, content to see the best win. If his favorite receives other than the blue ribbon it will only increase his determination to try again and come back next year with better sheep.

In an ideal shepherd I would prefer the man who has spent his whole life with the one breed he favors, believing that breed to be the best in existence. His whole heart and soul is with them, so when it comes to building up a flock he knows how, for has it not been his one object in life, studying and specializing in his favorite breed, always learning something fresh and increasing his knowledge and learning "to know how better."

STANDARD AUTOMATIC GATE



**STRONG, SIMPLE, DURABLE -
EASY TO OPERATE**

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Cutter's Anthrax and Blackleg Vaccines

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TRACTION ENGINE PLOWS
California Product.

Strongest, lightest draft. Cheapest and best on market. 60 days guarantee.
S-R DISC PLOW CO., 62 Post St., San Francisco

THE UNIVERSITY HOG-SERUM WORK.

The following letter was written by one of the University staff to a member of the Legislature:

"Believing that you will be pleased to know of the success of the anti-hog cholera serum work, the bill for the establishment of which you introduced in 1911, I am sending you under another cover some literature describing the work. We are not asking for an appropriation this year, as the laboratory will be self-supporting from the sales of serum if the present demand keeps up.

"As soon as the Governor signed your bill the regents of the University advanced \$3,000 to the work of preparation until the appropriation should become available.

"We made quicker time in getting started than many of the other States, and our first serum was shipped on September 14, 1911.

"The following figures show what has been done by the hog serum laboratory: Total serum distributed, 1,735,677 c.c. It was used on about 86,000 hogs. Five and one-third per cent of this has been distributed free in small amounts, as provided by law. Average number of hogs treated per month during the first three months, 2035; average number of hogs treated during the last three months, 7623. During the first three months the serum distributed free amounted to 30 per cent of all shipments; during the last three months the serum distributed free amounted to 4½ per cent of all shipments. Average receipts per month during first three months from sale of serum and virus at 2½ cents per c.c. \$712.82; average receipts per month during the last three months from sale of serum and virus at 2 cents per c.c. \$2900.

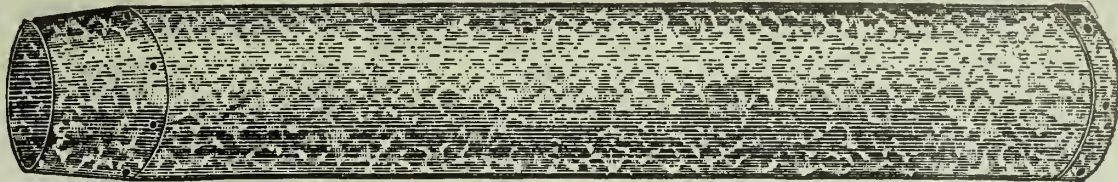
"The demand for the serum has increased from an average of 2035 doses for the first three months to 7623 doses during the last month. During the first three months 30 per cent of the serum distributed was given away free in 500 c.c. amounts to hog owners who furnished evidence that their hogs were in danger of the cholera. During the last twelve months the demand for free serum amounted to only 5 per cent of the amount sold.

"Our experience has proved the wisdom of your scheme of giving away 500 c.c. or less free of charge. For the hog owners looked upon the serum as a sort of an experiment, and at first the demand was largely for small amounts. Our records show a progressive demand for the serum. Ranchers are ordering it in increasingly large amounts with confidence in the results it will produce. The appropriation was none too ample, and during one month last spring, when the demands from Imperial valley were very great, we could not supply them, and deemed it advisable to import some serum from the Kansas Experiment Station.

"Unless an unexpected amount of cholera occurs, we expect in the future to be able to supply all demands. The results of the use of the serum in California compare very favorably with the results in other States. Our serum has saved the hog-raising business in Imperial county and has done much good in Colusa county. There have been some bad complaints attributed to improper use of the serum, but during the past six months these have been rare.

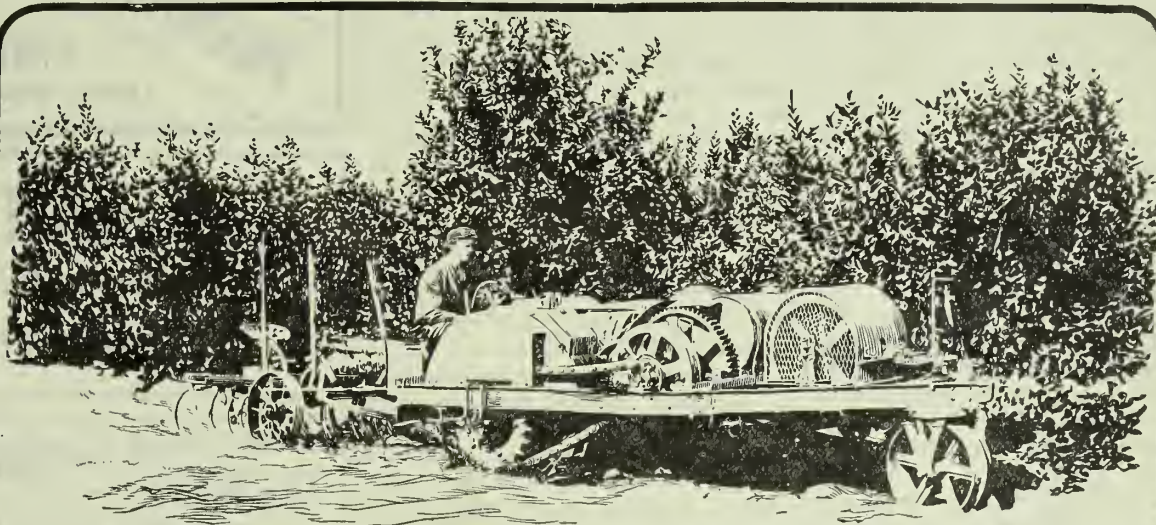
"The value of the vaccination depends largely upon the good judgment of the man who administers the treatment. The best results have been obtained when we have been able to send a representative of the station into a section to instruct the hog owners and the local veterinarians in its proper use."

SAVE YOUR TIME WATER AND GRADING BY IRRIGATING WITH AMERICAN SURFACE IRRIGATION PIPE



The PIPE RECOMMENDED BY ALL USERS. It is the ONLY SCIENTIFICALLY CONSTRUCTED SURFACE IRRIGATION PIPE on the market. Famous for having a lock seam without rivets. THERE'S NO ROUND SEAMS TO LEAK, retard the flow of water or weaken the pipe. This pipe is easily handled and cheaper than flumes. It will last a lifetime. For irrigating alfalfa it is the only pipe to use. We make RIVETED PIPE, TANKS, ETC. Write for ILLUSTRATED CATALOGUE, also SPECIAL IRRIGATION FOLDER which may mean much to you.

American Steel Pipe & Tank Co., General Offices 342-43 Pacific Electric Bldg., Los Angeles, Cal.



Owners Know

There's one sure way to tell about any machine—find out what owners say of it. We want you to give

The Rumely Toe-Hold Tractor

this test. Hunt up someone who has one, and ask him. We've been asking for opinions on this tractor and find that for strength, easy running, low cost of upkeep, and doing a lot of jobs, you can't beat it.

It is especially good for orchard cultivation, but will do any job that a medium sized tractor will do—it will plow, haul, bale, thresh, harvest—do all kinds of field and belt work.

For Orchard Work

S. M. Warden, of Winters, California, says:

"I find that your tractor does all and more than is claimed for it. It is unsurpassed for orchard work, as you can plough closer to the trees than with a team, and make as short a turn as with a two-horse team, and best of all, it does not pack the ground."

Costs Little to Run

Geo. J. Tomasini, of Suisun City, Cal., says:

"I believe there is no cheaper or better tractor made."

Last year we plowed on an average of six inches deep and harrowed twice about 600 acres of land for \$300."

"Good in Every Way"

W. M. Edgell says:

"Highly recommend tractor, draws load of fourteen horses. Does work of twenty. Goes everywhere two fifteen-hand horses can. Turns in radius of ten feet. Easily operated. Does every kind of farm, orchard, stationary work, pumping, sawing, threshing. Splendid engine. Used distillate. Fuel and oil cost 40 cents per hour, maximum load."

We have the opinions of many others—they all agree that the Rumely Toe-Hold Tractor is a winner. It has 28 brake h.p., 14 drawbar h.p. It is light, handy and powerful.

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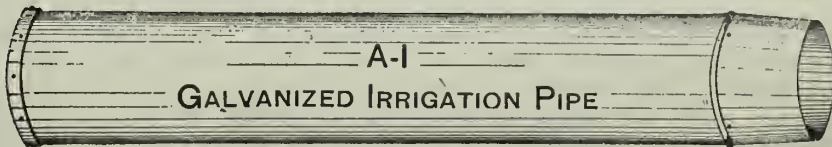
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If you are interested send for our new 1913 catalogue. AMES & IRVIN CO., Cor. 8th and Irwin St., SAN FRANCISCO. Also manufacturers of Metal Roofing, Conductor Pipe, Eaves, Troughs, Etc.

Raise More Turkeys on the Farm.

[Written for the PACIFIC RURAL PRESS by
SUSAN SWAYSGOOD.]

The turkey is the national bird, and is well worthy of all the praise bestowed on it, but for some reason the quantity is getting less every year. This may be partly due to loss of range in some parts of the country, but there are yet thousands of acres of good turkey land left, even in California. A great many of our holiday turkeys come from Texas where there is considerable range left yet, but even that State is getting cut up into small holdings, so the turk's paradise will soon be gone.

Now I believe in plenty of room for turkeys, but at the same time it is not necessary to have such a big range if the turks are started right when young. They will come home if fed regularly, and even if one had to herd them there would still be many times more profit in them than in many of the crops we raise.

As insect destroyers they cannot be beaten; turn a band of turks out where the crops are being destroyed by grasshoppers or bugs and see what will happen. The turks will just live on them and you will not need to feed them anything except what you wish, and even then they will not eat much of it. The feeding is really more to keep them in mind of the home coming than for any need of it. In all our hill land which is too steep for cultivated crops, turks will do the best and bring in a golden harvest at fall.

GOOD FOUNDATION.—The most important thing in starting to raise turkeys is to secure good, strong, healthy stock that have not been bred in. I believe inbreeding is at the root of nearly all diseases of turks, except perhaps roup, and that is often caused through mistaken kindness. Except you are in the fancy, you need not be particular about the markings, what the farmer or his wife keeps turks for is generally what they can make out of them for meat. So that if you find good size combined with vigor, the feather markings need not cause you any worry. I would prefer to buy hens of a good cross and get a big tom with a little wild blood in him. Given a start with such birds, all they need is proper feeding and cleanliness. Housing, except just shade, is not needed in this State. In fact, the turks will be better without any housing winter or summer.

In Sonoma County the turks used to roost on a rail fence, winter and summer, and one of my neighbors had a hen come off in December out in an alfalfa patch. Talk about rain; why it was a deluge, the river and creeks overflowed, drowning out rabbits and gophers, but that turkey hen marched the little turks to a high place and brought them home when the waters went down. Yet all tradition says "little turks will not stand damp grass." And it is just as well not to risk them out in wet or damp weather. Still I believe there has been too much coddling and fussing with all kinds of young stock; if we would only try to conform more to natural conditions it would be better for the turks and us too.

LOCATION.—The soil plays quite an important part in the rearing of the young, and perhaps the idea that young poults would die if kept on wet grass originated from a wet, boggy section. Some land is too soggy for them; the best is a light, somewhat sandy soil where the rain passes away through the pores, if I may use such an expression. Such land is never really cold, no matter how wet it may get, and if the poults are allowed some exercise they will keep the circulation going all right, no matter how wet the weather may be. Of course they must

have some protection from the rain, but mother and poults; but instead of a house I would furnish a good fresh air coop where the chicks can run out at leisure. They will not leave the mother, and when the day advances both should be turned out for a run.

While I have raised a good many turkeys with ordinary hens, such as the barred rocks, a good turkey hen two years old makes an ideal mother. Of course chicken mothers do not ramble like the turk hen, but I think that quality is offset by her weaning the little poults just when they need a mother's care. The turkey hen stays with them until most of their troubles are over.

WHITE HOLLAND TURKEYS FOR SMALL FARMS.—The White Holland turkey is getting to be more favorably known as the "stay-at-home turkey," being more domesticated than the bronze. While they are not considered as large as the bronze, they are suitable for the family dinner. And they can, by selecting the largest of the flock as breeders, be bred up to weigh as much as the average bronze. Hens weighing from ten to twelve pounds are plenty large enough for the average family to invest in a dinner; therefore, they will always be in demand for family use.

Among their many good qualities may be mentioned productiveness, as those that breed them claim a much larger egg production than either the bronze or Bourbon. If not allowed to sit, quite a number of poults can be hatched from a small number of old stock. Two-year-old breeders are preferable to younger ones.

Another good feature is that they are easily broken up when they get broody and commence laying again. Being of a quiet disposition and not given to rambling, quite a flock can be kept on a few acres of land, and if fenced in they don't spend days looking for an outlet, but accept the situation as it is. This one quality alone should endear them to the heart of the small rancher, for we all know that it is almost impossible to pen up the bronze variety, unless the run is covered, and that makes it very expensive.

Another good point in favor of the white turkey is the color of the feathers; being white they are made to take the place of goose feathers for some purposes. The nice white skin and light-colored feet make them very attractive as a table bird. They are supposed to be sports of the old-time black turkey, but as black turkey was the real wild turkey I hardly see how they can be more domesticated, springing from wild stock.

I do not suppose anybody really knows, other than that all black fowls do throw sports occasionally. I have had Black Ninorcas throw white chicks, and white ones throw black ones. And once a White Orpington threw a black chick for a customer and I received a letter covering several pages about the wickedness of selling black birds for white. Of course I explained that it was just a freak, but I know my statement was not believed; people are so prone to believe ill of another that they will not listen to explanations. And yet this is a fact known to all breeders, that freaks, or sports are thrown from nearly every variety of fowl that we have.

So much for the origin of white turkeys. Let it be what it may, they are destined to be bred on a great many small ranches in California, because they are more adaptable to the size of the farms here and easier to control.

In buying stock look for large-boned,

and, as in the bronze, be sure the tom and hens are unrelated. While the white variety have been very scarce and prices high, now that they are being more

largely bred it is possible to get them at reasonable prices. The care of them does not differ from others except that they bear confinement better. They are

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Meat Meal Bone Meal
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PREMIER POULTRY FOODS "Good as the best
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It saves expense and
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Poultry Department, Hopland, Cal.

WHITE LEGHORNS

Selected and mated to imported stock cockerels.

BABY CHICKS at \$12 per hundred.

EGGS \$6 per hundred in lots of less than 1000 eggs. Orders in excess of this, 10c per dozen above highest market price one week before shipment. 75 per cent fertility guaranteed.

8000 hens yarded—sanitary conditions perfect.

Well raised—well culled—eggs will produce layers.

PENS—TRIOS—SINGLE BIRDS OF ALL BREEDS.

BUFF ORPINGTONS—WHITE WYANDOTTES—RHODE ISLAND REDS AND BARRED PLYMOUTH ROCKS.

EGGS at \$6 per hundred and \$15 per hundred for **BABY CHICKS**.

S. C. W. Leghorn Pullets in full laying from \$7.50 to \$15 per dozen.

Eggs and stock from prize winners a matter of correspondence.

UTILITY STOCK

NO CULLS

FRESH AIR ECONOMY BROODER THE UP-TO-DATE METHOD OF BROODING CHICKS



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The "FRESH AIR" makes the chicks happy.

The "ECONOMY" makes the poultryman happy.

No foul or burned-out air for the chicks to breathe either day or night. Impure air makes chicks weak and subject to various disorders.

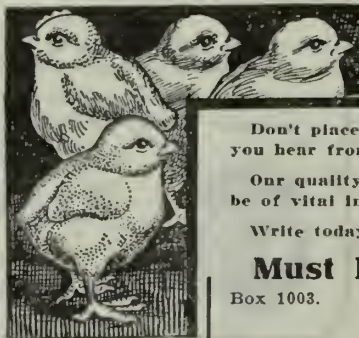
No big oil bills to pay. Takes only 1 1/4 gal. of engine distillate to keep 1200 chicks warm and comfortable for 24 hours.

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Don't place your order for chicks or hatching eggs before you hear from us.

Our quality of stock and low prices combined are sure to be of vital interest to you.

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Night Scene Showing 1700 Chicks, 10 Days Old about an Arenberg Patent Stove.

This picture is from an actual photograph, and the stove is the original and only perfect oil stove made. This stove has REVOLUTIONIZED the rearing of **BABY CHICKS**. It is

Arenberg's Patent Brooder Stove

and has proven to be the most successful brooding and heating stove on the market. Awarded Gold Medal for most meritorious California invention at California State Fair. Perfectly safe, simple, easy to manage. Burns Stove Distillate, Engine Distillate, Coal Oil, and, in an emergency, can burn Wood or Coal. For full particulars write

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Live Agents wanted in every state and county in the United States.

POULTRY.

THE MANOR FARM RHODE ISLAND REDS have won more prizes, cups and specials during 1912 at the big important shows than all their competitors. Utility or exhibition stock and eggs; also please remember if you order S. C. White Leghorn chicks from our 180-200 egg strain you will want more. Prices on chicks, \$10 per 100; eggs, \$5 per 100. Also Barred Rocks and Minorca eggs and stock. The Manor Farm, Petaluma, Cal.

MAMMOTH BRONZE TURKEY EGGS From the largest and best pure-bred flock in the world. All turkeys carefully selected, and combine the greatest prize-winners and the best blood of the East and Middle West. They have large bone, long deep bodies, full breasts, brilliant plumage and are healthy. No inbreeding. Write for further information. Geo. A. Smith, Corcoran, Cal.

OUR GOLDEN ANTLERS AND SILVER CAMPINES took several first prizes both for the fowls and the best white eggs at San Jose, November, 1912. From Jan. 1st to Oct. 31st, 23 hens laid 4148 eggs, and are still laying. Crystal White Orpington and Antler pullets for sale. S. & B. G. HAIGH, Route 2, Box 4C, San Jose, Cal.

BUFF LEGHORNS—Booking orders for spring delivery of day-old baby chicks from two-year-old breeding stock; also eggs for hatching by setting or 100; 6000 egg incubator capacity. Indian Runner duck eggs for sale. Baby ducks hatched to order. R. M. Hempel, R. F. D. 1, Lathrop, Cal.

WESTERN HATCHERY—Fred Dye, Proprietor, successor to Dye & Fredericks. Now booking orders for day-old chicks, from heavy-laying strain White Leghorns. Prices on application. Box 2, Petaluma, Cal.

PIGEON BARGAINS—Fine young Homers, \$1.00 mated pair. Large Runt crosses, \$2.00 mated pair. Thoroughbred Carnaux, \$3.00 mated pair. Discount for quantities. Sunny Slope Squab Farm, Healdsburg, Cal.

SCHELLVILLE HATCHERY—Thoroughbred White Leghorn chicks shipped on approval; examine at your home before remitting; no weak ones charged for. Rural Box No. 72, Sonoma, Cal.

CROLEY'S POULTRY CONDITION POWDER—A tonic for Poultry. 25-lb. Galvanized Pails, \$2.00. 5 1/2-lb. can, 50c. 2 1/2-lb. can, 25c.

WHITE ORPINGTONS—100 early hatched cockerels and pullets from prize-winners. Sales subject to approval on delivery. Eggs \$5 to \$15 per 15. Jeanne A. Jackson, Oroville, Cal.

THOROUGHbred WHITE ORPINGTONS (Kellerstraus strain)—Heavy layers. Hens \$3 up, Roosters \$5 up. Eggs \$3 per 15; fertility guaranteed. A. A. Leonard, 3526 Custer, Oakland.

BABY CHICKS—Eggs for hatching. Buff Minorcas, White Orpingtons, White Plymouth Rocks, White Leghorns, thoroughbred Hoganized stock. Mrs. C. A. Sanford, Mountain View, Cal.

\$3.00 PER HUNDRED—Standard Thoroughbred White Leghorn eggs for hatching. Hatchable eggs from healthy hens. Heavy winter-laying stock. Andrew Emery, Kenwood, Cal.

BROWN LEGHORN ROOSTERS, chix and eggs, same in Barred Rocks, White Minorcas. W. S. Rose, Yuba City, Cal.

CHOICE BREEDING COCKERELS and day-old chicks, Barred Plymouth Rocks and White Leghorns. Fairmount Hatchery, Box 29, R. 1, Santa Cruz, Cal.

ORPINGTONS—Buff and White. Trios, \$10 up. Eggs, \$3 to \$5 a setting. Chicks, 30 cents each, incubator lots. Mrs. S. Swaysgood, R. 2, Pomona, Cal.

S. C. WHITE LEGHORNS—Heavy layers, California's greatest prize winning strain. Eggs, chicks, stock. Send for list. M. Dutterbernd, Petaluma.

PHEASANTS—Ring-necked China pheasants for sale; also eggs in season. Address T. D. Morris, Agua Caliente, Sonoma Co., Cal.

CHICKS—White Leghorn, White Rock; high-class stock. Send for booklet of prices. Mahajo Farm, P. O. Box 597, Sacramento, Cal.

FOR SELECTED EGGS AND CHICKS from S. C. White Leghorns, see Hopland Stock Farm advertisement.

BABY CHICKS, from heavy layers. White Leghorns, Barred Rocks, R. I. Reds. Free folder. White Hatchery, Petaluma.

BUFF ORPINGTON AND COLUMBIAN WYANDOTTE; eggs and stock. Mrs. Leona Brophy, 1415 N. St., Fresno.

subject to the same diseases, so that fact should tell us not to inbreed.

People that have tried them after keeping the bronze say they much prefer the white where range is limited. Of course some very small specimens have been sold and some that were late hatched and

BARRED ROCKS ONLY—Now is the time to order your eggs and hatched chicks. Send for price list. G. L. Hawley, Madera, Cal.

BARRED PLYMOUTH ROCKS, White Minorcas, White Holland turkeys. Stock and eggs only. L. N. Cobbledick, Oakland.

CHICKENS, DUCKS, GEESE, GUINEAS, Pea fowl. Address Wm. A. French, 545 W. Park St., Stockton, Cal.

TRAPNESTED S. C. WHITE LEGHORNS. Eggs, chicks, stock. A. R. Schroeder, Box F, San Gregorio, Cal.

WHITE LEGHORNS—Chicks, eggs, cockerels. Fine stock. Reasonable. O. B. Morris, Lodi, Cal.

CROLEY'S DRY MIXED INFANT CHICK FEED—The first feed for your baby chicks.

BRONZE Turkeys and Eggs. Ed Hart, Clement, Cal. Large size, good plumage, early maturity.

TWIN OAKS FARM—W. H. Bissell, Proprietor, Livermore, Cal.—Buff, White Orpington.

S. C. WHITE LEGHORN BABY CHICKS, \$9.00 per 100, \$85.00 per 1000.

S. C. WHITE LEGHORN HATCH-EGGS, \$1.00 per 15, \$5.00 per 100.

My stock is thoroughbred and carefully selected for Standard and laying qualities.

J. R. HEINRICH POULTRY YARDS, Arroyo Grande, Cal., San Luis Obispo County.

PENNANT STRAIN BARRED and BUFF PLYMOUTH ROCKS.

A few choice cockerels and pullets left. Eggs for hatching after January 1st.

JAS. M. MONTGOMERY, 4380 Fleming Ave., Oakland, Cal.

THE THOMAS HATCHERY Petaluma **FOR CHICKS**

Which are **Cheaper** and **Better** than all the rest, because we have **Better Stock** and **Better Equipment** and because we do give you **Better Service**.

Write for price list and pamphlet, mailed upon request, without cost.

Single Comb White Leghorns a specialty. **CARL D. THOMAS, Proprietor**, Petaluma, Cal.

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By its use more and better chicks are raised, with 1/2 the labor, and no crowding; no chilling; no overheating. Write for a free catalogue giving full particulars about this wonderful method.

PETALUMA BROODER STOVE WORKS PETALUMA, CALIFORNIA



Free Book

giving a full account of hatching, raising, and caring for chickens,

with details of a Complete System of Feeding.

Will be sent to you on application

COULSON CO.

Box E, Petaluma, Cal.

did not have proper care were simply runts, yet they have been sold as breeders. Now this should never be done. It is all right to hatch late if one has the eggs, but the late ones should be sold for table fowls and only the early strong specimens sold as breeders. If this was the rule in breeding all fowls we would soon have better and larger stock.

THE WAR OF THE WIZARDS.

To the Editor: Some time ago a neighbor employed a "water finder," commonly called water witch (though why witch and not wizard is beyond our comprehension) to locate a well for him, and we promised to report result. It appears that he has had two of these men. The first one told him to bore at a certain place and he would find lots of water. He got a well-boring crew and they went down 154 feet and found no water and no gravel even. The second expert had told him to bore in another place 100 feet or so north of the first well. The owner demurred to this and said he thought it was too far out of the way. The man told him: "If you bore here I will guarantee you will find water, but I will not if you bore 20 ft. away from it."

Today I went to the place to look at the last well. The borer had pulled up the 154-foot casing out of the first well and had used 80 feet of it in well No. 2 and the water was within 5 feet of the surface. He went down 80 feet; struck coarse gravel and big rocks at 54 feet, with lots of water; continued boring and struck another stratum of fine gravel 5 feet deep; went through this to the clay and stopped. This is a fact and can be verified by anyone who cares to investigate. Whether it is luck, judgment, or a special faculty, I leave you to determine; the facts are as I have stated them.

San Jose. SAM'L. HAIGH. [We do not know a thing about it, either. As for nomenclature, the "water witch" is the forked twig; the user thereof is a "wizard," if of the male sex.—EDITOR.]

PROPOSED ACID TREATMENT OF FARM MANURE.

To the Editor: We alfalfa growers are confronted with a problem of how to reduce strawy manure to a fine enough consistency to apply to alfalfa and thereby avoiding the gathering up of same with the hay crop. I have in mind the method pursued by manufacturers of acid fertilizer, namely the application of sulphuric acid to the ground phosphate rock, thereby making the superphosphate available for plant food. Presumably the same method is applicable to strawy manure. However, I am in the dark in regard to cost of sulphuric acid and the chemical action upon the manure.

The dairy inspector advises the removal of manure. If the strawy manure is to remain until decomposed it will also harbor millions of flies. If it is removed to a heap at some distance the trouble is not altogether overcome.

Hughson. A. H. GABEREL.

[No analogy can be drawn between the use of sulphuric acid on phosphate rock and upon organic manure. The materials are so different in nature that opposite effects would follow, and the cost would bear no relation to the value of the product, for the effect of the acid would be destructive and not constructive of value in the manure. If you cannot arrange a closed receptacle in which fermentation can be controlled and fly-breeding prevented, you had better figure along the line of mechanical comminution—such as running the material through a cutting machine before spreading.—EDITOR.]

"A Word to the Wise"

Do you want to get more eggs from your poultry than you ever obtained before? Do you want to cut down the mortality among your hens? Then feed PACIFIC PIONEER FISH MEAT MEAL.

Chemical analysis shows this fish meat meal to contain 28% more egg-laying protein than the average run of good beef scraps. It is therefore cheaper to feed than beef scraps, as it does not require so much to produce desired results. Furthermore, it keeps poultry in a sound, healthy condition, as it does not contain the hair, wool, hoof, etc., found in beef scraps, which kill off so many laying hens and baby chicks each year.

Use pure Fish Meat Meal in your feeds, and no beef scraps. By using a mixture, the good results are lessened in proportion.

Write for feeding test reports, samples, etc., to

WESTERN TALLOW COMPANY 38-42 Beale St., SAN FRANCISCO, CAL.

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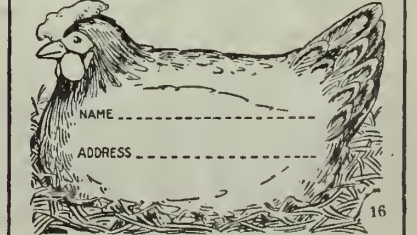
Western Feed Company North Point and Taylor Streets San Francisco **SOLD BY ALL LEADING DEALERS**

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show you how the poultrymen on our Little Farms in the fertile Sacramento Valley, California are making their dimes grow into dollars because they cannot supply the market—the demand is increasing faster than the supply. No winter months to contend with—chickens run out the year 'round. Come where the profits are being made. We allow you ten years to pay for your land. The finest alfalfa land in California.

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BABY CHICKS

Hicks' Jubilee Hatchery is now booking orders for Chicks. We guarantee satisfaction.

Buy from the one that does his OWN HATCHING. W. Leghorns, B. Rocks, Buff Orp., Blk. Minorcas, R. I. Reds.

Send for Circular.

W. J. HICKS, Route 2, Box 22, PETALUMA, Cal.

Something About Pumping Plants For Irrigation.

[Written for the PACIFIC RURAL PRESS by
WM. H. KRITZER.]

It is generally known the quantity of water required for the irrigation of different crops depends upon conditions: nature of crop, kind and depth of sub-soil, humidity of the air, the amount of rainfall during and just previous to the starting of the crops, etc. From this it is plain to be seen it is not possible to give the exact amount of water required in any case.

The common water terms used in California are: gallons per minute, which simply means the number of gallons flowing per minute; irrigator's inch or miner's inch, defined by a statutory law as 11.23 gallons of water per minute, which is approximately 1/40 cubic foot of water per second. However, in many localities the old miner's inch of 9 gallons of water per minute is still retained as the unit of measurement, which is only equivalent to 1/50 cubic foot of water per second.

The second-foot means the same as cubic foot per second, and is the quantity of water flowing in a stream one foot wide, one foot deep, at a rate of one foot per second. The acre-foot is equivalent to a quantity of water one acre in area and one foot in depth. The area of one acre is equal to 43,560 square feet, and it would require 43,560 cubic feet of water to cover it 12 inches deep. As there is 7.48052 United States gallons in one cubic foot, it will take 27,158 gallons of water to cover each acre one inch deep, or 81,474 gallons for a single irrigation, which is commonly accepted as meaning three inches deep, or 325,851 gallons, 12 inches deep.

There are several ways in which you can place water on the land. One is by the gravity or ditch system, the other by wells. The gravity system is not entirely satisfactory, as it often does not supply the necessary water and is a distributor of foul seeds that are usually permitted to grow in abundance along its banks. This last mentioned annoyance is avoided by having your own well and your own ditches, which permits you to have the water when you want it, and the quantity you require, and it is not necessary to let your crops suffer waiting for some one else to finish irrigating.

When some men buy a pumping plant they think that the only expense in the future will be for the power. They have not taken the depreciation of the plant into account, and when the plant becomes worn out they think it is an accident, that

they are unfortunate. Possibly the plant ceased to be profitable long before it gave out, and it would have been a saving in money to have replaced it with a modern outfit. All pumping plants have a definite life, so a land owner should set aside a portion of his yearly profit to provide a sinking fund so when the time comes he can purchase a new and up-to-date plant.

The approximate horsepower required to raise a given number of gallons per minute, after due allowance is made for frictional losses, is to take the number of gallons to be pumped per minute and multiply this quantity by the total height it is to be raised, and divide the product obtained by 2,000. This rule does not apply to the operation of all pumping plants, as some have a larger friction loss than others. Some wells deeper than 300 feet requiring from 60 to 75 per cent of the power applied to take care of this loss, varying according to the size of the pump, cylinder, etc., used.

The cost of pumping plants differs. Then one may not last as long as another, although it pumps equally as much water when it is first installed. A plant in which steam is used for its operation costs the most and is the shortest lived. The gasoline or distillate engine plant costs about half as much as a steam plant and has about the same life. The crude oil engine in price compares favorably with either of the above installations and is very much cheaper to operate from every point of view. A plant that runs by an electric motor costs the least and the motor depreciation is small; however, the price of electricity may bring its actual cost for operation above that of the other kinds of power mentioned.

The comparative fixed charges under normal conditions may be taken as 20 per cent of the first year's cost of the steam plant, 18 per cent of the gasoline engine or distillate plant, and 12 per cent of the motor-driven plant.

"Those shoes are too narrow and too pointed," said the stout man, who was having trouble in getting fitted. "Oh," said the salesman blandly, "but they are wearing narrow, pointed shoes this season." "That may be," said the stout man, gruffly, "but I am still wearing my last season's feet."

Teacher.—Billy, can you tell me the difference between caution and cowardice? Billy.—Yes, ma'am. When you're afraid yourself, then that's caution. But when the other fellow's afraid, that's cowardice.—Harpers's Bazar.

THE QUANTITIES OF WATER REQUIRED FOR IRRIGATING.

Allowance must be made for seepage and evaporation.

(Compiled by Wm. H. Kritzer.)

Number of pump in gallons per minute (11.23 gals.)	Number of pump in second foot	Acres irrigated 3 in. deep in 1 hour	Acres irrigated 3 in. deep in 12 hours	Acres irrigated 3 in. deep in 24 hours	Horse power required for 20 foot lift	Horse power required for 30 foot lift	Horse power required for 40 foot lift	Horse power required for 50 foot lift	Capacity of pump in gallons per minute
25	2.22	.334	.216	.432	.125	.025	.037	.049	25
50	4.45	.668	.432	.864	.250	.050	.075	.100	50
75	6.68	1.002	.660	1.32	.375	.075	1.12	1.50	75
100	8.90	1.336	.876	1.75	.500	1.00	1.50	2.00	100
200	17.80	2.672	1.76	3.53	1.00	2.00	3.00	4.00	200
300	26.70	4.008	2.65	5.30	1.50	3.00	4.50	6.00	300
400	35.60	5.344	3.54	7.08	2.00	4.00	6.00	8.00	400
500	44.50	6.680	4.39	8.78	2.50	5.00	7.50	10.00	500
1,000	89.00	13.360	8.84	17.69	5.00	10.00	15.00	20.00	1,000
1,500	133.50	20.040	13.32	26.64	7.50	15.00	22.50	30.00	1,500
2,000	178.00	26.720	17.88	35.76	10.00	20.00	30.00	40.00	2,000
3,000	267.20	40.080	26.52	53.04	15.00	30.00	45.00	60.00	3,000
4,000	356.00	53.440	35.40	70.80	20.00	40.00	60.00	80.00	4,000
5,000	445.00	66.800	44.16	88.32	25.00	50.00	75.00	100.00	5,000
10,000	890.00	133.600	88.32	176.64	50.00	100.00	150.00	200.00	10,000
15,000	1,335.00	2,004.00	132.60	265.20	75.00	150.00	225.00	300.00	15,000
20,000	1,780.00	2,672.00	176.76	353.52	100.00	200.00	300.00	400.00	20,000

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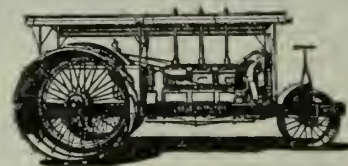
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The Agricultural Development of Yuba County.

[Written for the PACIFIC RURAL PRESS by
C. A. SCHRADER.]

From an agricultural standpoint, Yuba County has heretofore been considered one of the poorest in the State. With the exception of a narrow strip along the east bank of the Feather River and along the west bank of the Yuba River and also a narrow strip along the north bank of the Bear River, the land is mostly foothills and rolling plains. The greater portion of the county has been devoted mostly to stock and grain raising.

The people are now beginning to wake up to the fact that the land will produce fruit and other things besides grain and stock, and the county is now being settled up very rapidly.

BROWN'S VALLEY IRRIGATION DISTRICT.—This district comprises about forty thousand acres of land and is situated in the foothills about twenty miles northeast of Marysville. The district was started about twenty years ago, the water being supplied through ditches from the Yuba River.

It has been proven in this section that most any kind of fruit can be raised, as the writer made his home there for about ten years, raising different varieties of fruit and berries to good advantage. There is now one of the finest olive orchards in California within this district. It was sold recently at \$475 per acre, there being forty acres. A big movement has been started within the last year toward colonization of parts of this district.

The old Viegne Ranch, comprising about fourteen hundred acres, has been purchased by the Obeir Investment Company, of San Francisco, and has been subdivided into what is known as the Loma Rica Colony. Most of the land has been sold and there are at present about fifteen families settled there, who are going to plant the land to fruit of different varieties, mostly oranges, olives and peaches. The Daggert Ranch has also been bought up and subdivided. There are already about two hundred acres of this planted to young trees.

HALLWOOD TRACT.—This tract of land was formerly owned by Senator Diggs. It is situated about six miles northeast of Marysville along the Yuba River, and contains about two thousand acres. This is also being settled up very rapidly and planted to fruit trees and alfalfa.

There has been a new irrigation district started here, known as The Hallwood Irrigation District. The water is supplied from the Yuba River, a dam having been built across the river. The main intake is a concrete tunnel nine hundred feet long, constructed under the supervision of the United States Government. This tunnel carries the water to the main canal from which it is distributed to all parts of the tract.

EVOLUTION OF THE OLD MATHEW'S RANCH.—A. L. Adams and S. V. Armstrong, of San Francisco, have purchased the Mathew's estate. This property is located about four miles north of Marysville along Nigger Jack Slough, and adjoins the Hallwood Tract. There are about fourteen hundred acres in the estate. The greater portion of this land is rich sediment soil and is very well adapted to fruit growing.

About eight hundred acres of the piece has been sowed to alfalfa and three hundred acres is being planted to peach trees, Thompson Seedless grapes, olive and almond trees. The ranch is also being stocked with pure bred Holstein cows for dairy purposes and registered

Tamworth hogs. The land will be irrigated by water from the Hallwood Irrigation district.

SWEDISH COLONY.—Now we come to the southern part of the county. Located about six miles south of Marysville is one of the most progressive little colonies of them all, which is known as the Swedish Colony. The Farm Land Investment Company, of Sacramento, have purchased a large tract of land along the Feather River and have subdivided it into small farms, which are being sold to Swedish people. The movement was started a little over a year ago and already there are more than thirty families settled there. They are planting the land to alfalfa and fruit trees of different varieties, mostly peaches. Most of the farms are being equipped with electric outfits with which water will be pumped for irrigation purposes.

The old Ostrom Ranch, situated a little to the east of the Swedish Colony and containing about two thousand acres, has been purchased by W. Casey. The land, which was formerly devoted to grain and stock raising, is now being planted to different kinds of fruit, including walnuts, grapes, peaches, olives and oranges and alfalfa. Mr. Casey is also having the ranch stocked with first-class Tamworth hogs and a good bunch of White Leghorn chickens. He is contemplating having about fifteen hundred bronze turkeys next year.

If Yuba County keeps up advancing at the rate it has the last year or so, there is no question but what it will become one of the leading agricultural counties of the State instead of one of the most backward.

MAZATLAN AGRICULTURE.

A consular report from Mazatlan, west coast of Mexico, states that tomatoes were shipped to the United States from Los Mochis, in the State of Sinaloa, by the American colony there in November, or several weeks earlier than hitherto. This industry is rapidly growing and becoming of importance. Expectations for this season call for exportation of some 400 carloads of tomatoes and at least 20 carloads of canteloupes. Many of the tomatoes grown in this district have reached California markets. In the same report it is stated that cows and steers of from four years up can be purchased delivered at ship's side at the port of Topolobampo, in lots of 500 to 1,000 for \$15 per head. These cattle would be in fair condition and average larger than the stock along the border.

PISTACHIO NUT CROP.

The U. S. Department of Agriculture is introducing the pistachio nut into California. There is no doubt of its adaptability to California soil and climate, the only question is an economic one.

A report from the Levant Trade Review, Aleppo, Asia Minor, states that the whole crop in four provinces of Asia Minor is approximately 2,500 tons, valued at the present market price at \$950,000. This is an exceptionally large crop and if the prices were not held up by a certain syndicate which controls the market, they would fall badly. The price in Aleppo warehouses is about 15 cents a pound. The demand, it is stated, from the United States is increasing rapidly, last year the imports being valued at \$100,000. As received in the United States the nuts are salted, roasted and packed in soldered tins.

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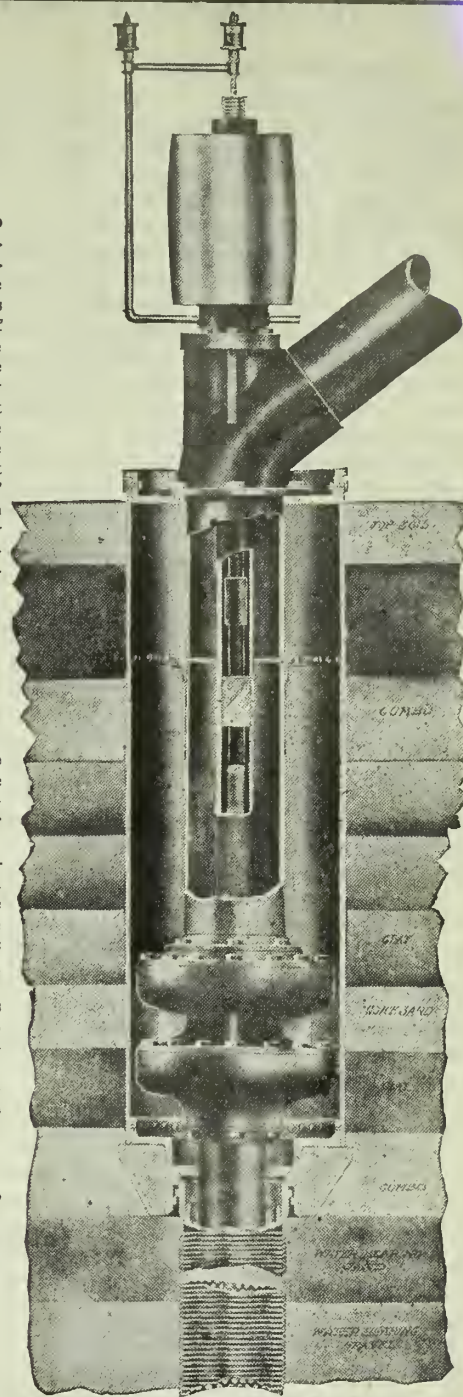
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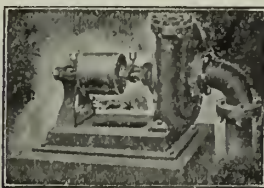
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AGRICULTURAL REVIEW.

Exposition Live Stock.

Interesting developments in the live stock department of the Panama-Pacific Exposition continually occur. The American Trotting Registry Association has done something never done before by it—offered \$1000 in cash prizes for standard bred horses, to be awarded on the basis of trueness to type rather than performance on the track. Heretofore awards have been made according to the speed of the animal. This is in addition to the prizes to be given for racing. The American Association of Importers and Breeders of Belgian Draft Horses likewise have taken action recently, putting up \$2000 for breed prizes. This, it is thought, will be increased to \$6000 before long. The Angora goat men are holding up somewhat on the prizes offered by them at the local shows, in order to get a large amount for 1915. Even the cat people are coming through handsomely, but that is hardly farm live stock.

Nevada Live Stock Combination.

The Union Land & Cattle Co., comprising in its membership many of the largest cattlemen of Nevada, was recently incorporated at Reno. This has a capital of \$5,000,000 and will be a controlling feature of the Nevada live stock trade. The company will include Mary's River Land & Cattle Co., Sparks-Humphreys Cattle Co., and other large concerns. It will control 300,000 acres of land and will develop irrigated land.

While there is more or less agitation for and against public stock yards in this State, it is interesting to note that Uruguay is establishing a public stock yards and slaughter house at Montevideo and 18 smaller slaughter houses in the smaller cities. The total cost will be \$1,912,900 gold, and will be defrayed from the proceeds of the fees for cattle brands and marks.

Start Irrigation Early.

Earlier than ever before, the Sacramento Valley Irrigation Co., on February 27, turned water into its main and river canals and will keep them full until the season is over. In Glenn and other counties where the company is operating, the rainfall has been insufficient for the most satisfactory planting of orchards, and the growers were calling for water for planting, also to give the blossoming trees a good start.

Over in Sutter county it is said that the ground contains less moisture than for years, and that irrigation will be practiced extensively early in the summer. A large amount of business in installing pumping systems is being done.

The frosts in the Sacramento valley are said to have done much less injury to fruit buds than was first stated. With proper moisture supplies and favorable weather from this time on, everything is favorable for a fine crop. A few places the frost did an appreciable injury to almonds.

Santa Barbara Horticulture.

A large amount of planting is being done in Santa Barbara county this year, according to the monthly report of Horticultural Commissioner C. W. Beers, both of citrus, deciduous, and walnut trees. The freeze has shown a number of new places where frost injury is very light, and it has encouraged planting there. Many walnut groves are also being grafted over and new plantings are being made on black walnut roots. Some interest is being shown in the carob tree for stock food where moisture supplies are scant. The only thing that is retarding develop-

ment is lack of irrigation supplies, and this is being remedied by the development of water from every source that is available.

Co-operative Progress.

The necessity for co-operative marketing by growers and the appreciation of the great advantages therefrom is seen in the birth of a new association, applying to a new agricultural industry. The Imperial Valley Cotton Growers' Exchange has been incorporated for \$50,000, the stock being divided among the growers at the rate of \$1 per acre. The directors chosen were W. E. Wilsie, W. A. Edgar, T. D. McCall, O. P. Hyde, W. Brandenburg, Antonio Gerdes, M. Schlatter, and C. W. Barton. There is a possibility that the Exchange may have a cotton mill established in the valley.

Down in Salinas the beekeepers who produce the famous Monterey honey have met to organize the Monterey County Beekeepers' Club. The officers elected were S. A. Niver, Jamesburg, president; K. Frank Hennekin, Monterey, secretary, and C. W. Presnall, Monterey, treasurer. The club will affiliate with the State Beekeepers' Association.

At the last meeting of the Sebastopol Apple Growers' Association, Walter I. Newcomb was selected to succeed E. C. Merritt as manager. Mr. Newcomb has been a leading grower and deputy horticultural commissioner.

The Associated Raisin Co. at Fresno has decided to begin operations on the holdover crop of raisins by April 1, provided sufficient stock is subscribed to finance the work by that time. A little help in the market, such as a big growers' company like this might give, is badly needed. It is probable that the company will not buy and sell raisins unless 75% of the crop is contracted for. The company has about 3000 contracts already signed.

Start Big Dairy.

One of the largest and most modern dairies in California is being established by W. E. Germain, northeast of Willows, Glenn county. A large acreage to alfalfa has been developed, and two new barns costing \$3000 each are in course of construction. Mr. Germain is spending \$10,000 in securing good dairy cows for the ranch. The first lot will get on the place by the first of the month.

In Orland, Glenn county, H. F. Harrold is receiving a large consignment of pure-bred Holsteins from Eastern States. These were bought by W. M. Carruthers on his recent trip. Mr. Harrold also is stocking up with choice pure-bred hogs.

California's merits as a stock farm are indicated by some trade that is coming to Woodland. A large consignment of pure-bred sheep and swine left Woodland recently for Guatemala for a buyer who had previously tried out other stock from that district. Some good sales have also been made recently to stockmen from the Northwest.

At the M. S. Finley auction sale near Modesto recently the prices for grade Holsteins ran from \$50 to \$96. An interesting feature was the bidding for Minorca fowls, eight dozen of which sold for \$12.25 per dozen. Brown Leghorns brought \$6.75.

Farmers' Institutes.

The following Farmers' Institutes have been announced by J. B. Neff, Conductor of Farmers' Institutes in southern California: El Cajon, March 10, 11, 12; Lemon Grove, 13; Ramona, 14; Arlington, 18; Bloomington, 19; Highland, 20; Redlands, 21; and Riverside, 22.

Citrus Notes.

As a result of the cold spell this January and the killing of seedbed stock and the big demand for citrus trees for planting, the price of seedbed stock has gone up greatly. Before the freeze the price was about \$14 per thousand, while sales recently have been made for \$25 and \$30.

One of the biggest sales ever made of orange stock was when C. W. Buswell, of Zante, Tulare county, contracted with a Los Angeles company to deliver 400,000 year-old stock.

On account of the poor crop last December in Tulare county, the assessed value of orange groves is to be decreased \$50 per acre.

The Commerce Court has sustained the dollar rate from California to the East on shipments of lemons.

Land Progress.

The State Engineer and the California Debris Commission are considering the route of the by-pass to be used in the improvement of the Sacramento river. The by-pass will run from the Glide district at Willows Bend north to the mouth of the Feather river. It is thought that the proposed new route will be accepted. Its construction will mean great possibilities of development of lands now periodically flooded.

The Lake Elsinore Farm Land Co. has recently disposed of 778 acres, which will be leveled, irrigated and set to alfalfa this spring.

Two large ranches near Knights Landing, Solano county, were recently sold—the Webb ranch to David Ahern, James Duffy and Dan Donohue, and the R. H. Baily ranch to Howard C. Whitman.

Winter Irrigation Helpful.

Heavy winter irrigation for oranges may be a fine thing, according to an experience of Samuel Hoobler, of Porterville. Water was run through a flume this winter in Mr. Hoobler's grove, and in one place a big leak occurred which was not discovered for several days, during which time seven trees got an unusually large application of water. The yield from these trees proved to be much heavier and better than on the remainder of the grove, apparently through the application of the water only, and it seems as if winter irrigation in the big valley citrus groves may be a fine thing.

Some experiments in dry-farming in the Salinas valley which were to be conducted by farmers by the suggestions of Prof. Hardy Campbell have been postponed, as the season is too far along to begin properly. They will be taken up next fall.

The annual shipment of ladybirds from the State Insectary to Imperial county to attack the melon aphid is being prepared for. There will be about 36,000,000 insects of this species sent out this year.

FOR THE SAKE OF VARIETY.

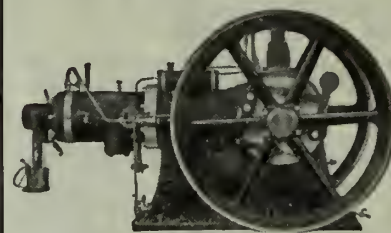
To the Editor: I have three cows which have been fed alfalfa hay all winter and are in very good condition and seem otherwise in good health and have salt to run to. Every time they chance to come to the yard they will pick up an old bone and chew it for perhaps a half hour. I always take the bone away from them when I discover it. Will you kindly tell me, through the RURAL PRESS, why they do this?—P. E. M., Atwater.

[Just for the sake of variety—just as a man, after a good dinner, may fall to chewing a toothpick. Give them a little grain or some grain hay, corn or sorghum stalks, or other roughage, just to chew on.—EDITOR.]

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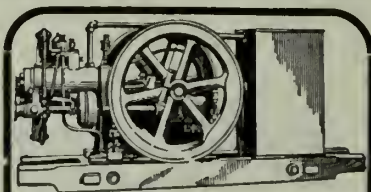
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CALIFORNIA STUBBLE BURNING.

H. W. Campbell, the dry farming apostle, avails himself of the visitor's privilege of knocking the California straw-burners, but he differs from others in prescribing what he considers a better practice. How far his advice will work depends upon the amount of moisture available and retentive character of the soil in any field. But we will not argue about it; let the reader consider his declaration, which is as follows:

The practice of burning stubble and straw is one of the grossest of errors, but this is commonly done all over the small grain sections of our country. In California, Oregon and Washington, where the combined harvester and thresher is extensively used, only enough of the straw is cut to assure the getting of practically all of the heads. The greater part of the straw is left evenly distributed over the field, and if fairly thick is almost invariably burned before plowing.

At a recent lecture, we asked the following question: "Why do you burn this stubble?" We received the reply, "Oh, it would leave our ground so loose if plowed under that we would not get anything." They were then asked if there was not a way to pack the land so that the stubble would rot. No one knew of such a plan, neither had they thought of trying to pack it nor what the result might be if they should do so.

DISKING AFTER HARVEST.—Double disking with a sharp disk promptly after harvest will have a tendency to mix this stubble into the top two or three inches of soil loosened by the disk, and this is

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Thousands will farm small ranches and have this wonderful market within one hour's ride.

It's just what you want. Just where you want it.

Take our advice. If you want something that's right, Go and see this country—

GO NOW.

Information gladly furnished.

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the first step to be taken in order to profitably utilize this stubble. A tandem disk is preferable, and the smaller the diameter of the disks the less the resistance and the more thoroughly will the soil be pulverized and the stubble mixed with the soil.

On heavy stubble the best work can be done when the stubble is dry. The disk should be set at full angle. A mulch which does not pack readily is established when this stubble is well mixed into the soil. The stubble keeps the soil loose and thus prevents capillary movement of the moisture to the surface.

THE SUBSURFACE PACKER.—Soon after this disking is done the soil will be moist below the mulch. The land should then be plowed from six to seven inches deep. The subsurface packer well weighted should be used immediately.

The sharp, wedge faced wheels will penetrate the soil and force it firmly onto the stubble in the bottom of the furrow. As the line of pressure is at right angles to the bevel, there is a downward and lateral pressure that firms the under portion while leaving the top loose; the water-holding capacity of the under portion is thus increased, and the surface being loose, a proper per cent of air reaches the moist soil and the straw will soon rot, forming nitrates and humus.

It is not for the reason that your soil may not be fertile that we urge all this, but for the reason that you increase the water-holding capacity of the soil, and it is possible to carry your crop through a longer or more severe drought without checking its growth, and for the further reason that as you increase the humus of your soil you have less trouble in obtaining an ideal seed bed—less tendency to crusting; and last, but by no means least, you increase your yield to the highest possible limit.

CO-OPERATIVE MARKETING WILL COME.

To the Editor: In your issue of February 1 appears an article by Mr. Dana L. Teague, which, in my estimation, is worthy of further discussion than the short note appended thereto by the editor. I am convinced that in a few decades co-operative distribution of farm products, by farmers themselves, will take the place almost entirely of the present method of selling or consigning to middlemen, so called. While it may not become necessary to invoke the power of the law, as Mr. Teague suggests, to bring this end about, but, if it were necessary, in order to make the undertaking successful, it certainly would be done.

This matter of co-operative marketing of farm products is receiving a continually increasing amount of attention, in proof of which it is only necessary to note the number of associations marketing such products as walnuts, almonds, berries, apples, raisins, citrus fruits, beans and eggs, and the list is continually growing.

One association could market all these products and save the expense of duplicate organizations, and this will come in time, but the co-operative movement is not yet sufficiently advanced for that.

To my mind, Mr. Teague is mistaken in calling the middleman a parasite, and I think when he considers the matter more fully he will discover his error. A parasite gives nothing in return for what it takes, but not so with the middleman. Were it not for him, the world would suddenly jump back to where it was when wealth could be distributed only as far as a man and a mule could go. Beyond this point distribution is dependent entirely on a middleman. He performs a definite service, absolutely necessary to the distribution of wealth, and the per-

formance of which is as honorable as is the work of growing the product, for, be it understood, a commodity is not produced until it is in the hands of the consumer ready for consumption. A box of apples, for instance, delivered at some railroad station in the country would require the service of some one to finish the production, before a consumer could be benefited thereby. The persons who take up the production where the efforts of the artisan ceases are the middlemen, and, while their methods of operation are crude and wasteful, until something better is offered, they are necessary.

The object sought by the marketing associations is to get the profit, now gained by the middlemen, for the benefit of the members of the association. As distribution of wealth is commerce, the farmer

aspires, through his association, to become a merchant.

If you consider the article timely and of sufficient merit for publication, I would like to follow up the subject with several more letters, finally outlining a tentative plan of organization.

Oakley, Cal. W. O. RETHERFORD.

[The article is all right; go ahead and let us see how it works out. We hope no one is in a hurry. We have been printing such good sense for 38 years. It takes a good while to move some things—meantime no one is tired of it, which is promising.—Editor.]

The Los Angeles Olive Growers' Association has purchased 180 acres of land north of Ripon, San Joaquin county, which will be planted to olives at once.

CLASSIFIED ADVERTISEMENTS.

Rate 2c. per word. No order for less than 25c. per week. If you have anything to sell, or want anything, use these columns.

TREES AND NURSERY STOCK.

AVOCADOS (budded), Feijoas, Cherimoyas, and other subtropical fruiting plants and trees. We have the largest and finest stock of budded avocados, and the best varieties. We grow only subtropical fruits of proven adaptability and sterling merit. Send for pamphlet. **WEST INDIA GARDENS, Altadena, Cal.**

FOR SALE—Florida sour orange seed. Order now while we have plenty. They will be higher later on. We also have grafted walnut trees, both black and soft root. **Orange County Nursery, 6th and Main, Santa Ana, Cal. Red 3891.**

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MOUNTAIN GROWN BERRY PLANTS—Red raspberries, 12c each; \$2.50 a hundred. Strawberries, \$1 a hundred; \$4.50 a thousand. **J. M. MOORE, Inwood, Cal.**

Himalaya Berry Tips. Well-rooted, strong plants; ready now and till March 15th, \$3 per C, \$20 per M, packed ready for shipment. **Milo S. Baker, Kenwood, Cal.**

MOUNTAIN GROWN BERRY PLANTS—Red raspberries, 12c each; \$2.50 a hundred. Strawberries, \$1 a hundred; \$4.50 a thousand. **J. M. MOORE, Inwood, Cal.**

VILLA ANNA NURSERY—Fruit and ornamental trees. Burbank standard cactus a specialty. **Santa Rosa, Cal. Write for catalogue.**

FOR SALE—1000 Cal. Black Walnut Seedlings, 3 to 6 ft., 2 years old; 8c. 3257 Galindo st., off Fruitvale ave., Fruitvale.

E. A. Bennett, of Ducor, Cal., will quote you sour orange seed, delivered to any postoffice.

HELP WANTED.

WANTED—A good lath-house man who understands propagating acacias, eucalyptus, etc. A good proposition for the right man. **KIRKMAN NURSERIES, P.O. Box 604, Fresno, Cal.**

LAND FOR SALE

BIG MONEY ON HOGS

LOS MOLINOS FARMER TAKES \$350 PER ACRE RAISING PORK

A Los Molinos farmer makes his land pay at the rate of \$350 per acre raising hogs. He recently marketed 50 hogs for \$700. The hogs were six months old and averaged 200 pounds. It required only four acres of land to produce the feed that matured and fattened these hogs. The farmer says he will turn out 50 more hogs from the same land within another six months. It required three acres of alfalfa to support the hogs to fattening age and one acre of corn and pumpkins to fatten them. The acre of corn produced 60 bushels, and 40 tons of pumpkins grew on the land at the same time.

Such remarkable results are possible only where there is a wonderfully rich soil and irrigation.

Los Molinos produces more alfalfa per acre per year more years than any other section of California.

It's the water. We had water to waste even last year, a showing that no other irrigation project in the state could make. You get a full crop here dry years when prices are high—alfalfa now \$14 a ton.

And you get 10 tons per acre. Fruit grows to perfection—fine orange and lemon land.

Corn 75 bushels per acre. Wheat and barley 40 to 60 bushels. Tracts 5 acres and up.

\$75 to \$150 per acre. Only 1/10 cash; 8 years to pay out. Going fast; soon all sold.

Come at once or write today. **LOS MOLINOS LAND COMPANY, Los Molinos, Cal.**

If you want cheap, high-class suburban acreage joining the city of Sacramento in tracts of from 1 to 10 acres, write today for our attractive folder and details of the greatest land proposition ever offered in California. **NORTH SACRAMENTO LAND CO., Owners of North Sacramento, 1004 K Street.**

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J. E. LAWRENCE, 210 Clay St., San Francisco. Broker and Commission Merchant. Handles all farm products. Ship direct or send samples.

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tested for capacity and operation and sold with a rigid guarantee. As we can furnish any size or make at extremely low prices, you cannot afford to purchase an engine without first getting our proposition. We can refer you to many satisfied customers. **SPECIAL: 14-8 H.P. Samson Engines, with magnetos and tanks, each \$150; 5-10 H.P., each \$195.** Information cheerfully furnished. **MECHANICAL INSTALLATION CO., Engineers, 181-189 2nd St., San Francisco.**

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Twelve tons of alfalfa an acre grew on Rivergarden Farms last year, without irrigation. Besides, two months of good pasture. This kind of farm soon pays for itself. Farm a farm that pays to farm. The soil is especially good for prunes, pears, potatoes, alfalfa, hops, sugar beets and truckgarden. In a word, it is river sediment land, and that means the best.

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21 miles along the Sacramento River near Woodland. The soil is river sediment, which is known to all farmers as the richest and the kind that pays best to farm.

It is all sub-irrigated and averages 35 feet deep.

Sold on easy terms so you may pay for it out of the crops. Write us for complete information.

STINE & KENDRICK

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SAN FRANCISCO

The Home Circle.

Make Work Easier for Farm Women.

During the past few months this journal has printed many articles telling of improvements for the home that farm life may become more tolerable. In this connection we wish to reprint an article taken from the Farm, Stock and Home, giving many points of value along the lines heretofore discussed in our columns:

Though never undervaluing the fact that improved outdoor machinery redounds to the wife's benefit in just the ratio that the farmer employs gangplows or adds more sections to his harrow, by eliminating the hired men, yet there is another way of conserving the mother's strength and continuing her youth far into the years, that might well be afforded in many instances, were it not that women themselves discourage the husbands in expending money for something they can "do without."

"I have got along very well without it, so far, and think the money had better be saved," we often reply when the husband broaches the subject of "new-fangled" household machinery.

I do not come to my sister farm women asking them to buy indiscriminately, but in so many ways we may lighten our burdens and gain that coveted time to read; and to live with our family in the best sense of the word for we are not too tired to listen to the child or enjoy the evening with the husband. And these labor savers may be procured for the price of nurse hire and a doctor's bill for a month's illness, to say nothing of the misery of a breakdown of our nerves.

Farm life, where there are countless things contributing to longevity, where the very air is life giving, contributes all that nature holds most precious to her children, and the women on the farm might be the healthiest and the happiest of God's creatures if they did not insist on being pack mules for the other members of the household.

One of the controlling factors in lessening woman's work is an ample water supply, right at hand. In too many instances the deep well and wind mill, or engine to do the pumping, are placed at, or near, the barn; which makes the use of the water for household purposes a grave risk because of probable contamination from the manure pile. Even if this could not be urged against the water for use in the house the wife would be the first object to the expense of piping the water into the kitchen, though she would heartily second the husband's move toward placing it in the barns, however great the distance.

Beside a certain kitchen door a deep well was sunk and a windmill placed above it. This tower was in the way when the wife wished a pail of water, so it was set beside the well and the pump is operated by a rocker shaft attached to the mill. This little device cost but \$4.

On the opposite side of the well platform was dug a cistern 12 feet square by seven feet deep. The well being on higher ground, the water was easily piped to the barns and it rises in cement water troughs so that the stock is always supplied.

The bottom and sides of this cistern are of reinforced concrete. The top, which also serves as a floor in the wash room, was first overlaid with railroad steel rails at intervals of 2 feet. Then lighter irons were placed between and lastly screen wire to hold concrete. This made a strong covering that has not cracked and is easily cleaned. Provisions were made for placing a force pump in one corner of this room. This pump is attached to the range boiler which holds 30 gallons

of water. One can, by the turn of a faucet, pump the water into the boiler or into a vessel.

With the ordinary heat of the range in doing the family cooking this water is always hot. Being clean water, it is utilized for cooking purposes as well as for all kinds of washing and cleaning. It is a very little chore to pump the water into this boiler as it has to be drawn but a few feet. The housekeeper scarcely realized the amount of labor it requires to pump and carry all the water used in the home by bucketfuls from a distant well. Yet this convenience cost almost nothing. The supply tank was a necessity on the stock farm, and the range boiler is but a little more expensive than the ordinary reservoir. The range stands in the kitchen; a pipe from the water front reaching through the partition to the boiler. This gives both hot and cold water in the washroom and here the cream separator and milk vessels are washed saving countless steps in summer and much exposure in winter. Here, too, the sausage is made and all the rougher work usual to the farm home is accomplished. The floor is easily cleaned.

By placing the bath room on the same floor or directly above the range the plumbing becomes very simple.

Farm women are availing themselves of a comparatively new invention, the washing machine and wringer operated by power of the gasoline engine. By its use a frail woman can do a large washing so easily that "blue Monday" is unknown. It is the one servant that does not shirk nor talk back, therefore never ruffles the temper. If she has also the water convenience above mentioned, the clothes may be sorted and the engine started directly after breakfast is over, then go about other household duties, and she can allow ample time for the cleaning of each batch, then by the mere turn of a lever set the wringer in action. One is now able to do an entire washing without expending any more physical strength than is necessary in washing the dishes. It is wonderful the way science is reaching out to women in the homes doing its best to make superintendents of them and lifting them above drudgery. The cost of these combined washers and wringers vary; but \$35 is a fair estimate. The engine is used for so many farm purposes its cost is not charged to the household expenses.

The invention of the most importance to the housewife from the sanitary standpoint, is the vacuum cleaner. These may be had operated either by hand or electric power. The one operated by machinery is to be preferred, but I want to tell of a hand-power machine that has been given thorough trial for two years and a half upon velvet, Brussels, ingrain, Japanese matting and rag carpetings in one home, and has rendered equal service under all conditions, though a little harder to operate on the rag carpet. The price was \$18. This sum is nothing compared to a dustless house and the knowledge that one can gather up the dirt at any time without anyone suffering the slightest inconvenience, as not a trace escapes to pollute the air.

Mattresses, upholstered furniture and cushions, are quickly relieved of dust. This means much to the housewife that lives near highways that are heavily traveled, or where soil drifts.

One person operates this cleaner with ease.

To illustrate the worth and efficiency of this machine, a rag carpet had lain in the living room for six months, when the vacuum cleaner was first applied. Its use was continued at intervals of two days until at the end of 18 months the carpet was lifted, to change the wear, and not a spoonful of dust was under it. A

neighbor was called in to witness the wonder; and since that day I am convinced that by the use of this machine, carpets become every whit as sanitary as rugs, and personal preference should rule when furnishing the home.

The other boons for busy women that cost but a few cents each are the dustless mop, to be used on the "finished" floors, linoleums, etc., and the dustless cloth for woodwork and furniture. These do not stir up the dirt and then let them settle in some corner, but take it up holding it secure.

These are but a few of the labor savers that are in reach of the average farm women. Where electric power is procurable, it is the nearest ideal; but the gasoline engine is the hope of the housewife in many localities where hired help is not obtainable. Indeed the engine that churns, turns the separator and does the washing is the housewife's most reliable helper.

Our grandmothers seized upon the the washboard as an improvement over rubbing soiled clothing between the hands; our mothers availed themselves of the washing and sewing machines, hand operated, but all their era had to give. Shall we fall behind by rejecting the motor powers offered, or turning away the little labor savers that, utilized, would afford us time and strength for the higher things of life?

—Alberta M. Kepper.

Household Hints.

To soften paint brushes in which the paint has been allowed to dry, heat some vinegar to a boiling point and allow the brush to simmer in it a few minutes. Remove and wash thoroughly in strong soapsuds and the brush will be like new.

To kill a bad odor put dried orange peel on a piece of redhot iron, or on an old shovel heated redhot, and it will not only kill the odor, but leave a fragrant one instead.

When lace curtains are ready to be washed, baste a narrow strip of muslin along each outer edge and let remain until ironed (or drying process is completed), and you will find your curtains are straight and do not sag as usual.

If one cup of vinegar is put with the water in which colored table cloths are washed, it will prevent the color from running. Iron when still damp and they will look equal to new.

A couple of tablespoons of borax in the water required for washing about five pairs of light colored hose will remove all traces of "leather" stain that they may have on them.

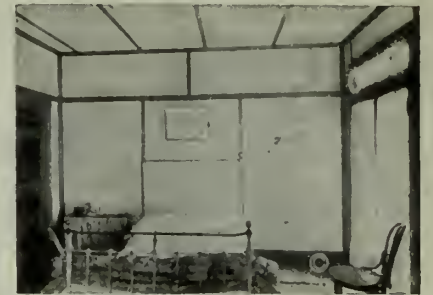
If one uses Chinese lanterns for decorative purposes, put a few handfuls of sand in the bottom, around the candle. This will keep the lanterns from swaying and also prevent their catching fire.

An Appreciation and Some Advice.

A letter from a pioneer lady reader of Napa county contains three points she wishes to express. For thirty years her family has been talking of having strawberries grown on the ranch—have tried at times by getting plants, but something always interfered and the berries were never in evidence. She says the Ettersburg berry plants are very fine and now that they have them well started, they expect to beat out the originator, in the fine soil of Napa valley.

She asks us to print a word of advice to parents, to the effect that a fine investment on the ranch is a blacksmith shop. Be sure to add everything useful to the shop possible. Provision made for restless, eager boys always pays. There are many things they can do in the way of repairing on rainy days, and if there

BEAVER BOARD



Mr. E. L. Tunis of Baltimore, Md., has found Beaver Board Walls and Ceilings admit variety of design to suit any room in the house.



Beaver Board has not only given Mr. J. R. Fant of Oklahoma City, Okla., beautifully designed walls and ceilings, but has made the room warmer in winter and cooler in summer.

Next Time You Think of Re-papering Don't

INSTEAD, investigate the advantages of Beaver Board for Walls and Ceilings. It will relieve you forever from plaster and of wall-paper, and give you clean, sanitary walls of pure-wood-fibre, the unique pebbled surface of which you can paint in attractive and tasteful colors.

BEAVER BOARD

Pure Wood Fibre Walls and Ceilings

Beaver Board Walls and Ceilings are made in panels suiting the best modern ideas of interior design. They are economical, easily put up in old or new buildings, keep out heat, cold and sound, save all the delay, litter, trouble and confusion of lath and plaster, lumber or other materials.

Sold by builders' supply, lumber, hardware and paint dealers and decorators in sizes to meet all average requirements.

GENUINE BEAVER BOARD has our registered trade mark on the back of each panel and sample. It has also a light-cream color all the way through, that comes only by the use of sanitary, durable PURE WOOD FIBRE. Insist on seeing both trade-mark and color before buying.

Write for free illustrated booklet "Beaver Board and its Uses" and for details of our free designing service, very helpful in planning, estimating, etc.



Ask Us for Free Booklet on "ARTISTIC HOMES," Samples, Information Prices, Etc.

THE LILLEY & THURSTON CO.

Rialto Bldg., San Francisco

Wells Fargo Nevada National Bank

of San Francisco,
2 Montgomery Street,
Northeast Corner Market Street.
Capital Paid up \$6,000,000.00
Surplus and Undivided Profits \$5,000,000.00
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Special Attention to Out of Town Accounts.
SAFE DEPOSIT VAULTS.

should be an embryo inventor among them, it gives him a chance.

A bit of advice to mothers is offered in the care of the throat. Frequently children will be eating nuts, popcorn, etc., just before going to bed. Unless the mouth and throat are rinsed out well, little hard particles may stick in the throat and give a great deal of bother the next day. If they cannot be removed by other means, a simple way to do so is to use a tooth brush, which will dislodge the particles and give relief.

Walnut Wafers.

Take two eggs, beat until light, add one cup light brown sugar, seven rounded tablespoons flour with one teaspoon baking powder and a little salt. Add one cup of chopped nuts, and drop half a teaspoonful for a cookie, well apart, on pie tins. Bake in a moderate oven. Very fine for Sunday evening tea.

A Give Away.

"What were you and Mr. Smith talking about in the parlor?" demanded Miss Blushes' mother.

"Oh, we were discussing our kith and kin," replied the young lady.

"Yeth you wath," interposed her little sister. "Mr. Thmith asked you for a kith and you thaid, 'You kin.'"

Says the Atchision Globe: "A baby is about the only new thing a man can get in his house that will not make the rest of the furniture look shabby." It is very clear that the man who wrote this never had a good, healthy baby in his house.—Boston Transcript.

KANSAS DOG FARMERS.

Secretary F. D. Coburn of the Kansas Board of Agriculture puts it up to his constituents in this way:

I cannot concede, all things considered, that the Architect of the Universe made on this round world of ours an equal area better adapted than Kansas to profitable sheep husbandry. The one detriment is worthless dogs, and this is the way we rise to the opportunity with which a kind Providence confronts us: In 1882 we had 806,000 sheep; in 1910 we had 175,000—a decrease of more than 78 per cent. In 1882 we had 129,000 dogs; in 1910 we had 199,000, an increase of 54 per cent.

These figures line with the experience of all the ages, which points out that no people whose land owners neglect animal husbandry, who sidestep the manure spreader, expectorate upon a sheep and deify the dog, can have any considerable, well grounded, permanent prosperity.

A pen picture I have seen, over-colored, but suggestive, sets forth that the average Kansas farmer does not attain the prosperity he should, because he gets up in the morning at the alarm of a Connecticut clock, buttons his Chicago suspenders over a Troy shirt to a pair of Detroit overalls, washes his face with Cincinnati soap in a Pennsylvania pan, and sits down to a Grand Rapids table, where he eats Battle Creek corn flakes, Chicago ham and Indiana hominy fried in Missouri lard on a St. Louis stove. If he has dessert it is probably prunes or canned fruit from California, or perhaps beans baked in Boston and seasoned with salt from Saginaw. Being thus fortified for the day he puts New York harness on a pair of Kansas bronchos fed with Iowa corn, and with a Moline plow stirs his fields, more or less mulched with a New England mortgage. After supper he pursues an agricultural weekly from New York State, that perhaps instructs him in extracting the potash from seaweeds, then reads a chapter from his Bible printed in Philadelphia, turns in under blankets made in New Jersey from Montana wool, only to be kept awake by a Kansas dog—the one cherished thing produced on the farm—and wonders why he is not rich.

AN EQUINE HERO.

It is announced from Sheridan, Wyoming that Comanche, the old horse which was the only thing of General Custer's army to escape annihilation at the hands of the Sioux Indians at the massacre of the Little Big Horn in 1876, soon is to receive a military burial beside the Custer monument, where are buried the bones of all the soldiers slain in that battle.

The battlefield is just across the state line from Sheridan, and, according to reports at Fort McKenzie, arrangements are being made to disinter the bones of the war horse at old Fort Lincoln and to have them reburied close to the Custer monument, where the battle took place.

Comanche was ridden in the battle by Private Miles Keogh. Two days later, when relief came, he was standing on the battlefield, head hanging, wounded in six places. At his feet was his dead master. He was the only living thing on the battlefield.

An advertisement, praising the virtues of a new make of infant's feeding-bottle, says: "When the baby is done drinking, it must be unscrewed and put in a cold place under tap. If the baby does not thrive on fresh milk, it should be boiled."

Blake, Moffitt & Towne
Dealers in 37 FIRST STREET, SAN FRANCISCO
Blake, Moffitt & Towne, Los Angeles
PAPER Blake, McFall & Co., Portland, Ore



None Are Infallible

We're all human beings and therefore liable to make mistakes. If you have any fault to find with "Pacific Service" let us know about it and we'll do all in our power to make things "right."

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Gates and Valves

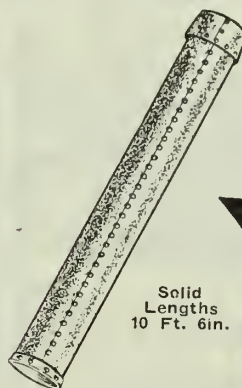
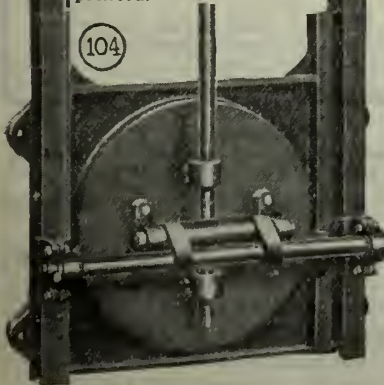
Are you sending irrigation water through dirt ditches. If so, half of it is seeping down through the sand, and YOUR MONEY IS GOING WITH IT.

We are the originators of the scientific irrigation system. Our Gates and Valves are the product of many years' investigation, study and improvement—the best in the world.

Install our economical irrigation system as others are doing—and do it before you lose in the race for dollars through wasteful methods and keen competition. The



1226 East 28th St.,
LOS ANGELES, CAL.
will plan your irrigation system free of charge. Clip this ad, mail to us and we will forward our Booklet on Modern Irrigation Methods, 7th edition just printed.



Note The Rivets

It is a known fact that riveted seams are the best and strongest seams.

"Western"

Surface Irrigation Pipe is riveted instead of lock-seamed and therefore gives the most in strength and wear. It is the strongest and most economical irrigation pipe on the market.

WRITE US—NOW for full particulars about this pipe. We'll show you how you can save money and get better results by using it.

We make Riveted Water Pipe, Riveted Well Casing, Steel Tanks and Irrigation Supplies

Western Pipe & Steel
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444 Market St.,
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Branches:
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Sold by Dealers Everywhere.

STANDARD OIL COMPANY

461 Market Street,

(Incorporated)

San Francisco, Cal.

THE MARKETS.

San Francisco, March 5, 1913.

(Unless otherwise noted, quotations represent prices paid to the growers.)

Cereals.

WHEAT.

Local business has not revived to any extent, and while Northern Red has been marked up a little, there is no general change in values. The Northern market, however, is fairly strong, and values here are well maintained as a result.

California Club	.....\$157½@1.60
Sonora	.....Nominal
White Australian	.....Nominal
Northern Club	.....1.57½@1.60
Northern Bluestem	.....1.67½@1.72½
Northern Red	.....1.57½@1.72½

BARLEY.

The tone of the market depends largely on weather conditions at present, and as more rain is needed, the feeling is rather firm. Trading, however, is light, and few buyers will pay \$1.35 for choice feed.

Brewing and Shipping	...\$1.45 @1.50
Choice Feed, per ctl.	.....1.30 @1.35
Common Feed	.....Nominal

OATS.

No further change is noted in this market and the only demand of any consequence is for White Feed, though a little Red Seed is still moving. Offerings are sufficient in all lines.

Red Feed	.....\$1.75 @1.85
Seed	.....2.00 @2.10
Gray	.....Nominal
White	.....1.45 @1.50

CORN.

Some California corn is moving, but as offerings of Eastern stock are ample there is no great demand. Values remain as before, but there is little strength to the market.

Cal. Yellow	.....\$1.45
Eastern Yellow	.....\$1.45 @1.50
Eastern White	.....Nominal
Kaffir	.....1.50 @1.55
Egyptian	.....1.70

RYE.

There is plenty of rye offered at the appearing quotations for local requirements, which are only moderate, and there is no movement of any importance.

Rye, per ctl.\$1.45 @1.50
---------------	-------------------

BEANS.

The bean market is beginning to show some signs of improvement, and while the movement is not yet very large, dealers look for quite a brisk demand during the next few months. The demand for mixed cars is keeping up in good shape, and there has in the last few days been some inquiry for larger shipments. Most varieties remain firm as to value, and some lines may be higher, though practically everything so far stands as before. The only quotable change is a slight decline in limas.

Bayos, per ctl.	.....\$3.25 @3.45
Blackeyes	.....3.15 @3.25
Cranberry Beans	.....4.70 @5.00
Horse Beans	.....2.25 @2.35
Small Whites	.....4.50 @4.65
Large Whites	.....4.20 @4.35
Limas	.....5.40 @5.50
Pea	.....Nominal
Pink	.....3.70 @3.90
Red Kidneys	.....4.00 @4.25
Mexican Red	.....4.00 @4.20

SEEDS.

Nearly everything under this head is quiet at present, with prices fairly steady as before. Some hemp is offered to arrive at lower prices, but spot values are unchanged.

Alfalfa	.....15 @16 c
Broomcorn seed, per ton	...\$29.00@30.00
Brown Mustard, per lb.	.....3½c
Canary	.....5½@6 c
Hemp	.....3 @3½c
Millet	.....2½@3 c
Timothy	.....Nominal
Yellow Mustard	.....Nominal

FLOUR.

Prices remain fairly firm at the same level as for some time past, the movement being fairly active.

Cal. Family Extras	.....\$5.60 @6.00
Bakers' Extras	.....4.60 @5.20
Superfine	.....3.90 @4.10
Oregon and Washington	.....4.90

Hay and Feedstuffs.

HAY.

The hay market shows no pronounced change, though the local situation is a

little stronger, owing to the lack of rain in the northern and central districts. Arrivals are still lighter than a few weeks ago, and everything is cleaned up readily at steady prices. Strictly fancy wheat or oat hay in light bales is still very scarce and firm, and No. 1 stock brings a slight advance, though the general range is unchanged. Dealers report many small offerings at easy prices in the country, though in many districts hay is still held above parity with the local market. A favorable turn in the weather would probably bring out much larger offerings. Alfalfa is still the cheapest feed available, and is moving freely in the country, but with large stocks in storage, prices are not improved.

No. 1 Wheat, or Wheat and Oat	.....\$18.00@20.50
do No. 2	.....15.00@18.00
Lower grades	.....12.00@14.50
Tame Oats	.....15.00@20.00
Wild Oats	.....12.00@16.50
Alfalfa	.....10.50@13.50
Stock Hay	.....9.00@10.00
Straw, per bale	.....35@75c

FEEDSTUFFS.

Alfalfa-meal has been in rather strong demand of late, and with only the average supply prices have advanced rather sharply. Other descriptions are quiet and easy, and a further decline is noted in rolled barley and oats. Some off-grade oil-cake meal is also offered below quotations.

Alfalfa Meal, per ton	.....\$20.00@21.00
Bran, per ton	.....25.00@26.00
Oil-cake Meal	.....39.00@40.00
Cocoanut Cake or Meal	.....Nominal
Cracked Corn	.....33.00@34.00
Middlings	.....33.00@34.00
Rolled Barley	.....27.00@28.00
Rolled Oats	.....33.00@34.00
Shorts	.....28.00@29.00

Garden Truck.

VEGETABLES.

Onions show no further change, but values are steadily held, with only moderate supplies of good stock. Supplies of green vegetables from nearby points are steadily increasing, causing a rather easy feeling in values, though some lines are still held at stiff prices. Rhubarb from around the bay and asparagus are coming in more freely, and both are lower, though the arrivals are cleaning up fairly well under a demand for shipment. Some fancy lots of rhubarb are said to bring \$3.50 per box in the country, but most offerings bring about this price in the local market. Many small lots of peas are also arriving from around the bay and sell below the Southern stock, although everything in this line is much lower. Offerings of celery and lettuce are again burdensome, and prices are much lower.

Onions: Yellow, ctl.	.....50@85c
Garlic, per lb.	.....1½@2c
Tomatoes, per box	.....\$1.25@1.65
Cucumbers, per doz.	.....1.00@1.50
Cabbage, per ctl.	.....40@50c
Carrots, per sack	.....50c
Cauliflower, per doz.	.....30@40c
Celery, crate	.....75c@1.25
Rhubarb, lb.	.....5@9c
Mushrooms, lb.	.....15@25c
Artichokes, doz.	.....75c@1.25
Sprouts, lb.	.....7c
Green Peppers, lb.	.....25@35c
Lettuce, crate	.....75c@1.25
Eggplant, lb.	.....20@25c
Green Peas, lb.	.....10@17½
Asparagus, lb.	.....12½@20c

POTATOES.

The movement of potatoes has not increased to any extent, the shipping demand being very slow, and with more on hand than the market can readily absorb, there is no improvement in prices.

River Whites, ctl.	.....35@50c
Salinas, ctl.	.....\$1.00@1.25
Oregon, ctl.	.....65@1.00
Sweet Potatoes	.....1.90@2.00

Dairy Produce.

POULTRY.

Nothing was carried over from last week, and arrivals of Eastern stock have been very moderate, with nothing more expected this week. Local offerings also are very light for this season, and everything is moving off at last week's stiff prices, with prospects of continued firmness.

Large Broilers, per lb.	.....26 @30 c
Small Broilers, per lb.	.....26 @30 c
Fryers, per lb.	.....24 @26 c
Hens, extra, per lb.	.....16 @18 c
Hens, large, per lb.	.....16 @18 c
Small Hens, per lb.	.....16 @17 c
Old Roosters, per lb.	.....10 @12 c
Young Roosters, per lb.	.....20 @22 c

Squabs, per doz.	.....\$3.00@3.50
Geese, per pair	.....1.50@2.00
Ducks, doz.	.....4.00@6.00
Turkeys, dressed	.....22 @24 c

BUTTER.

Arrivals are still moderate, and a shortage the first of the week, combined with some inquiry for shipment, has brought a slight advance in extras, which had shown little change for some time previous. Firsts are steady at the old quotations.

Thu.	Fri.	Sat.	Mon.	Tu.	Wed.
Extras	....33½	33½	33	33½	33½
Firsts	....32½	32½	32½	32½	32½

EGGS.

Prices dropped off ¼c at the beginning of the week, with excessive offerings and no large demand, but since then the former basis has been restored. At the present level there is some shipping demand, and the movement into storage has started on a rather large scale. Dealers consider the present price as low as the market is likely to go, and feel fairly safe in storing eggs at this figure.

Thu.	Fri.	Sat.	Mon.	Tu.	Wed.
Extras17	17	17	16½	17
Firsts16	16½	16½	16	16

Selected

Pullets15½	15½	15½	15½	15½
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CHEESE.

Y. A.'s are still fairly strong, with an advance of ¼c, and Monterey cheese is a little firmer, though only fancy stock will bring the top figure. Fancy flats have taken another drop.

Fancy California Flats, per lb.	....15½c
Firsts	.....15 c
New Young Americas, fancy	....18½c
Monterey or Jack Cheese	....16½@17½c

Deciduous Fruits.

The market is still limited to cold-storage apples, which are gradually finding a little better demand, though supplies are still too large for any quotable improvement in prices. Fancy Newtowns are fairly well held at the recent advance, which is causing a better demand for Bellefleurs. It is reported that arrangements have been made for the handling of the Watsonville strawberries, but no berries have appeared in this market for some time.

Apples: Fancy Red, box	....75c@1.25
Red Pears	.....40@60c
Bellefleur	.....65c@1.00
Newtown Pippins, 3½ to 4-tier	.....85 1.35
Common	.....40@60c

Dried Fruits.

Local packers report a much better feeling in most lines of dried fruit, though apples are still dull and weak. Inquiries for nearly everything else are coming in more freely than for some time past, and some business is being taken, though the movement is not yet large. A fair general movement is expected within the next few weeks, and in several lines prices tend upward. Small prunes have lost the weakness apparent for the last few weeks, and fancy apricots are more firmly held, the supply being very small. Prices offered in the country show no change whatever, but growers are inclined to hold out, and better prices may be realized if the spring trade is up to expectations. The New York Journal of Commerce says:

"Advices received in the trade from Coast prune-packing centers reflect a strong feeling on the part of sellers, and while in some quarters there is said to be still a disposition shown to shade prices, the undertone of the market on the Coast is reported to be firmer than it was a week or less since. The future of the California prune market is held to rest with growers, who control the bulk of the carry-over stock. They are understood to be getting nervous with reference to future output owing to the continued insufficient rains. Up to the present time the rainfall has been far below normal for the season.

"Apricots on the spot are getting a little more attention in a small way, and the market is somewhat firmer. Little demand for forward shipments is noted, but sellers are not trying to force business. Peaches, both spot and forward, remain quiet, with prices nominal.

"California raisins are slow of sale, and prices favor the buyer."

Evap. Apples, per lb.	.....3½@5 c
Apricots	.....9 @10 c
Figs: White	.....3½@4½c
Black	.....3 c
Calimyrna	.....4 @5 c
Prunes: 4-size basis	.....2½@3½c
(Premium: 1c for 40s-50s; 2c	

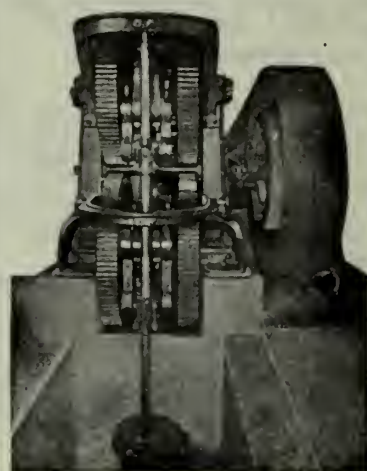
for 30s-40s.)

Peaches	.....4 @4½c
Pears	.....4 @7 c
Raisins—	
Loose Muscatels in sweatbox	2¼@2½c
Thompson's Seedless	.....4½c
Seedless Sultan	.....3 @3½c

Citrus Fruits.

Shipments of oranges and lemons from California are still very light, though many packing-houses that have been

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closed down for several weeks are preparing to handle fruit, which will increase the output. In the Eastern markets prices are still very low on oranges and lemons at the prices quoted last week

At New York on Monday, March 3rd, the citrus auction showed average prices ranging from \$3.40 for Mission Fancy down to \$1.25 for "Marguerite," a poorer grade. At Philadelphia the same day, two cars sold at \$1.50, \$1.60, and \$1.70 per box. At Pittsburgh prices ranged from \$1.10 up to \$2.60 for navels, while at Boston the lowest average was \$1.15 and up to \$3.70 per box.

Florida fruit at Philadelphia and Cincinnati has been commanding from \$1.60 up to \$4 per box for oranges.

Only about 20 cars of oranges and less than 10 of lemons are being shipped East daily. To March 2nd there had gone from California 5,533 cars of oranges and 787 cars of lemons, as compared with 8,276 cars of oranges and 1,409 of lemons to same date last season.

Arrivals of all citrus fruits in the San Francisco market are very light, and the consuming demand is keeping up very well, showing no curtailment from the advanced prices. Tangerines are cleaned up, and there is little reserve supply of navels, good fruit showing a further advance this week. Grapefruit is also higher. All grades of lemons are very firm, with a strong demand for small lemons in the absence of limes.

Oranges, per box—

Navels, good to fancy.....	\$ 2.00@ 3.75
Frosted	50c@ 1.00
Grapefruit, seedless	2.00@ 4.00
Lemons: Fancy	6.50@ 7.00
Choice	5.00@ 6.00
Standard	3.50@ 4.00

Nuts, Honey, Hops, Etc.

NUTS.

Both almonds and walnuts are closely cleaned up, practically all supplies being in the hands of the distributing trade, and quotations are largely nominal.

Almonds—

Nonpareils	17½c
I X L	16½c
Ne Plus Ultra.....	15½c
Drakes	12½c
Languedoc	11½c
Hardshells	8 c

Walnuts, 1912 crop—

Softshell No. 1.....	16 @16½c
Hardshell No. 1.....	15 @15½c
No. 2	10½c
Budded	17 c

HONEY.

The upper grades are firmly held at the recent advance, as offerings are light and there is a fair demand. Off grades, however, receive little attention.

Comb, white	14 @16 c
Amber	11 @12 c
Dark	9 @10 c
Extracted, white	8 @10 c
Amber	6½ @ 7 c
Off Grades	5 @ 6 c

BEEFWAX.

The larger offerings locally are pretty well cleaned up, and as there seems to be some demand, values are steadily maintained. So far little new stock has come in. The local demand, however, is limited.

Light	32 @33 c
Dark	26 @28 c

HOPS.

There has been a little movement in Sonoma county of late, several lots being sold at 11 to 16c, and there is little remaining in growers' hands. There is little if any business in the way of future contracts, offers of 16c for Sonomas having been rejected.

1912 crop	11@21c
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WOOL.

Prices have not yet been established on the spring clip, and meanwhile values are entirely nominal.

Fall Clip:

Northern and free Mendocino	12 @14 c
Lambs	9 @13 c
San Joaquin and Southern. 6	@10 c
Mohair	15 @28 c

HORSES.

Values are still a little unsteady, with

hardly any recent offerings bringing top figures, as the market still shows some effect of excessive offerings a few weeks ago. The local demand for all-purpose horses, however, is reviving, and greater interest is expected from country buyers. A large lot of fillies and brood mares, varying in weight from chunks to heavy drafters, has been sold here, but most of the stock was taken for the country. Offerings of desirable stock at the moment are limited, but a good many horses are being sold off by contracting firms.

Heavy drafters, 1700 lbs. and over	\$300@350
Light Drafters, 1500 to 1650....	250@285
Chunks, 1350 to 1500 lbs.....	200@250
Wagon Horses, 1250 to 1350....	180@225
Delivery Horses, 1050 to 1250...	125@150
Desirable Farm Mares.....	100@125

MULES.

1200 lbs.	\$200@250
900 lbs.	75@125
1100 lbs.	150@200
1000 lbs.	125@175

Live Stock.

Everything in this line remains very firm, with a further advance in many lines. Light and medium calves and hogs, as well as ewes and lambs, are higher. There is no further change in dressed meats.

Steers: No. 1	7¼@ 7½c
No. 2	6½@ 7 c
Cows and Heifers: No. 1....	6¼@ 6½c
No. 2	5½@ 6 c
Bulls and Stags.....	2½@ 4½c
Calves: Light	7½@ 8 c
Medium	7 @ 7½c
Heavy	5½@ 6 c
Hogs: Grain-fed, heavy.....	7¼@ 7½c
150 to 250 lbs.....	7¼@ 8 c
100 to 150 lbs.....	7½@ 7¾c
Prime Wethers	5¾@ 6¼c
Ewes	5¼@ 5¾c
Lambs	7½@ 8 c

DRESSED MEATS.

Steers	11¼@11½c
Cows	10½@11 c
Heifers	11 @11½c
Veal, large	10 @11 c
Small	12 @13 c
Yearlings	12 @12½c
Mutton: Wethers	10½@11½c
Ewes	10 @10½c
Spring Lambs	13 @14 c
Dressed Hogs	12½@13 c

HIDES.

The current demand is quiet, and some lines show a further slight decline, though in general the market is fairly steady.

Heavy Steers, over 56 lbs.	14 c
Medium	13 c
Light Steers, under 48 lbs. 12 ..	@13 c
Heavy Cows, over 50 lbs.. 12 ..	@13 c
Light Cows, 30 to 50 lbs.. 13½c	
Kip	14 @15 c
Veal	17 @18 c
Calf	17 @18 c

Dry—

Dry Hides	23 @24 c
Dry Kip, 10 to 15.....	24 @25 c
Dry Veal, 5 to 10.....	29 c
Dry Calf, 7 down.....	29 c

Horse Hides—

Salt: Large	\$2.25
Medium	1.75
Small	75c
Colts	25@ 50c
Dry	75c@ 2.00

Sheep Skins—

Long Wools	\$ 0.35@ 1.25
Medium Wool, 6 to 9 mos..	60@ 90c
Short Wool, 3 to 6 mos..	40@ 60c
Lambs	35@ 70c

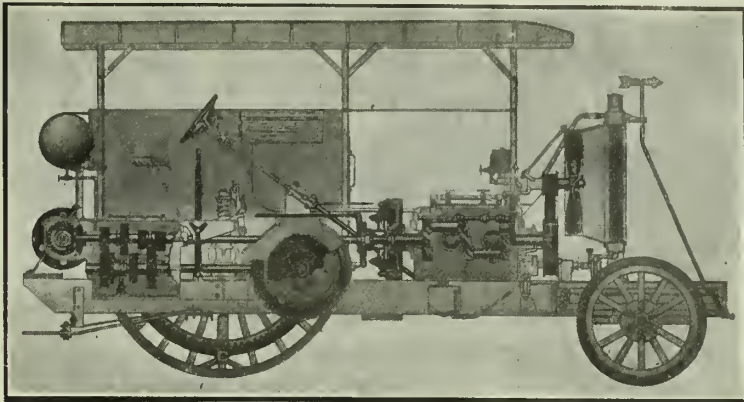
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truction. But the great superstructure, built on the foundation of want, will stand the test and in its splendid strength

rise in its might and weather ten thousand and tariff storms—for, hurricane or calm, God's people must be clothed and fed."



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Low center of gravity. Horizontal, double opposed four-cylinder engine. Two-bearing shank shaft. Dust guards over valve springs. No exposed working parts. Bosch high-tension ignition. Long connecting rods. Hand and power steering device. Change from hand to power steerer can be done in a few seconds while the engine is running. A large, heavy differential; multiple disc type of clutch; selective type transmission; separate brake on each rear wheel. Three speeds forward, one reverse.

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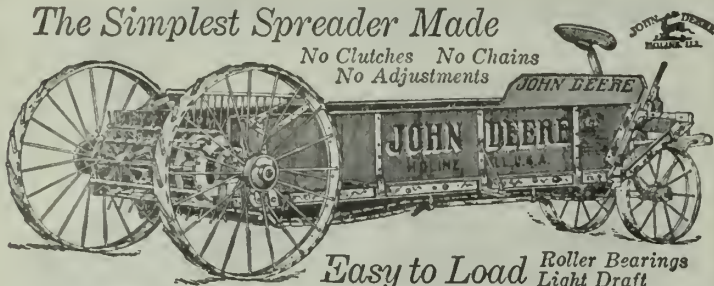
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John Deere Spreader

The Spreader with the Beater on the Axle

The Simplest Spreader Made

No Clutches No Chains
No Adjustments



Easy to Load Roller Bearings
Light Draft

Decided Improvement in Spreader Construction

Up to this time every spreader on the market has been constructed along the same general lines.

The John Deere Spreader, however, is different. It is entirely new and there is nothing else like it on the market.

All the working parts are mounted on the main axle. There are no strains and stresses on the sides or frame and no clutches or chains to give trouble.

The John Deere Spreader is low down, easy to load, very simple, and always ready for business. It cannot get out of order.

three feet. Thus, the hard work of loading a manure spreader is done away with. Besides, the person doing the loading can see inside the spreader at all times. Each forkful is placed exactly where it is needed.



Easy to Load

No Adjustments

On the John Deere Spreader no adjustments are necessary. On the simplest spreader heretofore made, it was always necessary to make from ten to twenty adjustments before the machine would work at all.

John Deere Spreader is thrown in gear by moving a heavy dog back until it engages a stop at the rear of the machine. No clutch used.

Positive Non-Racing Apron

By the use of a very simple locking device inside the ratchet feed, the apron is positively locked against racing when spreading up hill or over exceedingly rough ground. The result is that when spreading with the John Deere Spreader the manure is always spread evenly. This is not possible on any other ratchet feed spreader made.

Change of Feed

Change of feed is accomplished by a double shoe which is moved from the seat. This shoe determines the number of teeth the ratchets engage at each stroke. The John Deere Spreader has a variation of from five to twenty-five loads to the acre.

Substantial Steel Frame, Like the
Modern Railway Bridge

Both the side sills

in the John Deere

Spreader are of high

carbon channel steel

with the channels

turned to the inside.

Into these hollows

are fitted four large

wooden cross sills.

Being bolted, these

cross sills can be kept

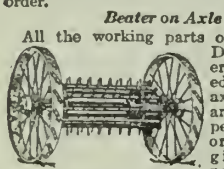
tight, insuring rigid-

ity and alignment

of frame at all times.



Built Like a Steel
Bridge



Beater on Axle

All the working parts on the John Deere Spreader are mounted on the rear axle. There are no independent studs or shafts to give trouble, nor chains or sets of gears to get out of order. All strains and stresses are borne by the main axle and are not transmitted to the side of the box or the frame of the spreader.

Power to drive the beater is taken from the rear axle and operates through a planetary transmission (similar to that used on automobiles) mounted on the rear axle within the beater.

Light Draft—Few Parts

There are at least two reasons why the John Deere Spreader is the lightest draft spreader made. One is that it has four sets of roller bearings; two in the front wheels and two on the main axle and beater. They reduce the draft materially.



Another reason is that the John Deere Spreader has so few parts. It has about 150 less types of castings than the simplest spreader heretofore made. It is only natural that the fewer parts a machine has, the easier it will operate.

When the John Deere Spreader is out of gear, it is simply a wagon.

Easy to Load

The first three feet manure is lifted with an ordinary spreader are easiest of all. The real hard work is from this height to the top of the ordinary spreader.

The John Deere Spreader is low down. It is only necessary to lift each forkful

Even if You Don't Need a New Spreader Now, Come in and See It.

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4 " " " "	88.00 " " " " "
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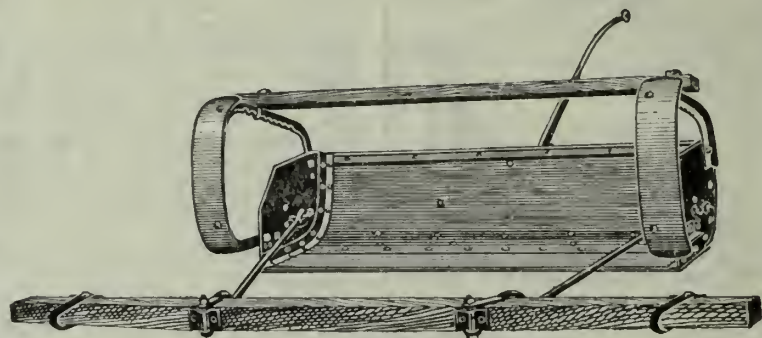
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This scraper is made entirely of high-grade steel. In the quality of materials used, workmanship and finish is superior to any other scraper made.

Dirt can be carried any distance and dumped in bulk or scattered in layers from one to twelve inches deep simply by adjusting two tail nuts, no wrench being required.

This scraper is made in four sizes, to cut three, three and a half, four and five feet, and in two patterns, "A" and "B." The "A" pattern with shoes or wearing plates on the bottom of the bowl, and the "B" pattern without.

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THE PACIFIC RURAL PRESS

Vol. LXXXV. No. 11.

SAN FRANCISCO, SATURDAY, MARCH 15, 1913.

Forty-Third Year.

FIGHTING THE BIG FREEZE.

[Written for PACIFIC RURAL PRESS by J. E. ADAMSON, Pomona, Cal.]

When one undertakes to tell of the recent frost fight in Pomona, the desire to describe it as one would describe a battle between contending armies on the field is almost irresistible. There is the same tense feeling among the recruits in the fight; as the time of the battle draws near, the heart breaks at failures to hold safely some outpost; the same hard struggles at corners, and along roadways. There were the scouts with reports to headquarters of the near approach of the dreaded enemy at some point more weak than others, and the orders to some part of the long front to open fire, then the gradual spread of the firing until before long the red glare extends along the whole line.

The very preparation for this fight was like a revolt of a downtrodden people. This same enemy had for many years made almost annual visits to the southland and taken toll from the tillers of the

of soot. The other well-known forms, the old-style Bolton and the Hamilton reservoir heaters, were in evidence, but by far the greatest number in use were improved Bolton and the California three-gallon heaters. The latter was the heater made in large quantities for the California Fruit Growers' Exchange. Both these heaters did splendid service, and made much less smoke and soot than the older and more crude forms.

Some of the Griffiths' smudge fuel, a mixture of mill shavings and ernde oil, was used, but not to any great extent in this vicinity.

The lighting was done mostly by the use of a simple device designed by the writer some years ago, and known as the Adamson torch. It is extremely simple and it is not hard to light 250 to 300 heaters per hour, and an active man can do better.

The oil used in the heaters was to be what is termed "slop distillate," and to contain only a small amount of asphaltum. It was soon found that when such large quantities were called for on short notice, it was not to be had in any specified grade, so it turned out that oils of



View of Pomona District and Its Mountain Environment.

soil. Not always in the same place, sometimes only making a slight demand, but always feared.

Small groups here and there for many years offered resistance, but in a way so puny and isolated that it seemed to come to naught. But out of these attempts came a gradual awakening of the people, so that the fight became more and more centralized from year to year, and when the danger time came this past fall there were not a few, but a large body of men, near Pomona, organized for a concerted rebellion and busy getting in supplies of ammunition in the shape of oil, and guns in the way of various kinds of pots in which to burn the oil, and other equipment such as torches and tank wagons. Headquarters had been established earlier in the year, and a chief of staff appointed; instructions were ready for the ones unfamiliar with the work in hand; nothing was to stand in the way of a winning fight.

In the final results it would be hard to find any one factor which it could be said was the most effective in saving, almost unseathed, thousands of beautiful trees and a large proportion of a bounteous crop of fruit, unless it might be the dominating spirit of perseverance on the part of the fighters, toiling on without rest for four days and nights.

Many and varied were the heaters used, from the more modern type with shore smokestacks and dampers to control and aid combustion, down the line to the cruder kinds of the past, to the use even of empty powder-cans with tops cut out. The latter kinds, of course, made, as well as heat, a dense volume of smoke and gave off large quantities

much lower gravity and containing 25% and over of asphaltum were shipped and burned.

The oils, as they average up in price for the different grades used, will cost the grower about \$1.10 per barrel of 42 gallons. This includes the purchase price, the freight, the cost of handling, the building of tanks, handling equipment at the railroad tracks, also all the expenses of the temperature patrol service operated for the benefit of the frost-fighters.

Many of the growers placed complete equipment of 100 heaters per acre; the average was not above 75 per acre for the entire district. The best equipped had less trouble holding the temperature than did those with the fewer heaters or those with the old-style small heaters, but at best it was a hard fight, and some gave up in despair before it was ended. Small isolated pieces were particularly hard to hold in such trying times, but in some cases were carried through in fine shape. But wherever there was a large body of fired orchards together, the work was not only easier, but more noticeably perfect.

Now to a description of the fight, to tell how a district that was once pointed at as the frosty part of its immediate neighborhood is now in such good condition, while all around in more favored districts are to be found such evidences of frost as were never thought to be possible.

Taking the map of the Pomona district, it will be seen that the

(Continued on Page 328.)

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Copy for change of advertisements must be in office on Monday preceding date of issue. New advertising copy must reach the office by Wednesday a. m. to insure insertion that week.

E. J. WICKSON - - - - - Editor
FRANK HONEYWELL - - - - - Manager
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CALIFORNIA WEATHER RECORD.

The following rainfall and temperature record is furnished the PACIFIC RURAL PRESS by the United States Department of Agriculture Weather Bureau, at San Francisco, for the week ending at 5 p.m., Mar. 11, 1913.

Stations.	Rainfall Data.			Temperature Data.	
	Past Week.	Seasonal to Date.	Normal to Date.	Maximum.	Minimum.
Eureka .....	.01	25.80	34.25	52	40
Red Bluff	00	13.64	19.03	82	46
Sacramento	00	5.50	15.06	78	40
San Francisco ..	00	9.25	17.77	76	46
San Jose	00	4.02	12.97	80	38
Fresno	T	4.24	7.09	80	44
Independence...	.04	3.11	6.93	66	32
San Luis Obispo .	.01	6.22	15.44	80	42
Los Angeles .....	.01	12.12	12.16	84	48
San Diego	T	5.31	7.83	76	48

The Week.

As we write on Wednesday there is a rain-storm reported in the offing—which sounds rather nautical and watery and we squeeze what satisfaction we can out of the word, because there is no better squeezing in sight. There may be, however, what can be called a remote consolation in the thought that there was a time when Californians did not have to worry about rain. R. L. Andrews, a mining man, has been boring into the Sierra Nevada mountains and announces that, under a lava capping two hundred feet thick, he finds fossil remains of palms and other semi-tropical vegetation resembling magnolias, palmetoes, etc., and he therefore declares that in the late neocene period there was a rank vegetation testifying to a humid climate. We have always claimed that there was nothing really desirable to the heart of a man which could not be found in California. We are glad, therefore, of this newly discovered evidence. Manifestly in the very places where there is now watching for rain there was once a rainfall heavy as that of Honduras, and the development princes of that day used to delight their clients by swinging them in tropical vines suspended from stately palm trees or raked elams for them from the oozy borders of the great interior sea. Whether that was more successful than motoring them through a cloud of dust and stuffing them with Woodson's acorn-fed turkeys, is a question which only one experienced in both promotive efforts can declare. We simply indicate pictures; we do not try to paint them. This, however, is clear: that the State was once wet clear through. Turn your mind down hard on that fact; it ought to steady you all right until the next shower comes along.

A Fresh Western View.

Last week we strongly commended the Western point of view as possessed of great national importance. It does not dim the glory of that fact to encounter now and then a Western view which

staggers you by its breadth and the depth of its potentiality. One such has just come to us in a pamphlet entitled, "Brief: Developing Title to Public Lands from Fundamental Sources," by George Edwards of Berkeley. Mr. Edwards is a graduate of the University whom we have known for a few decades—always with cordial admiration, but never with full understanding, because he seemed to be always in a diving bell fishing for fundamentals while rafting through the surface glitter was our delight. And now we understand it all in a way, for he has brought to the beach, where the crowd runs up and down, a legal monster which may not be so old as Mr. Andrews' neocene flora of the Sierra region, but in the possibilities of disturbance, it makes a neocene palm look like a blade of grass. The contention is simply this: the government never owned the public lands, but has always held them in trust and is bound by definite conditions and limitations. There are profound legal questions involved which we as a layman cannot understand, much less explain, but the upshot of the whole matter seems to be that the central government took the waste lands of the country to make States of, and for no other purpose; that there was a wrangle over the subject during the organization of the government which nearly upset the whole kettle of patriotism; that it never was settled until Virginia gave the United States a deed which specifically defines a trust and not a title; that all other States transferred as Virginia did, and that as soon as a State is organized and defined, all the land within its borders becomes the property of the State because the United States has discharged its trust function and cannot hold the land longer for the purpose for which it held it, viz.: to make States—for it is forbidden to make a State within a State. Mr. Edwards believes he is first to call attention to this significance of the Virginia deed of 1784 under which, or in imitation of which, the general government has secured possession of the public lands. Now, on this statement of the case or the claim, as we understand it, Mr. Edwards has laid hold on a fundamental, most surely, and if it does not keep all the courts, congresses and legislatures chewing for some time, then we have no idea of their appetite for fundamentals. If it should be as Mr. Edwards believes, then all our national conservation doctrine becomes moonshine and no one can dream what will become of government traffic in forest products, power-sites, reclamation service expenditures, and all that, for all the lands treated as national domain become State domains and belong to the States within whose boundaries they lie. Mr. Edwards' contention has been brought to the attention of the California legislature, and perhaps the music may begin at Sacramento. The only weak point we can see in Mr. Edwards' movement is that he is not a professor: he is certainly startling enough to be one.

Protecting Potash.

Synchronous is not such a hard word as it was before the electricians took it up, and therefore we are no pedant to say that synchronizing with Mr. Edwards' national trust-busting comes the announcement that George Otis Smith, director of the United States Geological Survey, has issued a bulletin announcing the withdrawal of certain potash lands from entry. He says: "The President has recently approved the withdrawal of three tracts of land of the desert-basin type in California and Nevada that are believed, as the result of investigations by the United States Geological Survey, to contain valuable deposits of potassium salts and brines. The aggregate area thus withdrawn is 133,829 acres." These lands are on the deserts of Nevada and California and

they have been recently fought over to establish mineral claims. Now the government will urge Congress to pass a law authorizing the handling of the lands by the United States "in order that American potash deposits may be developed under conditions that are favorable to the producer and will at the same time protect the consumer." This will all look a little funny when Mr. Edwards' fundamentals strike it, for apparently the States of California and Nevada, and not Uncle Sam, should be going into the potash business.

Wild Life in California.

And this does not refer to the Western point of view, nor to the potash business. We have in mind the hope that most of the wild bills about game preservation which entered the legislature during January died during the February recess. Game preservation ought really to be fundamental by Mr. Edwards, for we believe that he would conclude that the game belongs not to the State but to the landowner who gives it habitation and nourishment, but we are not contending particularly for that now. We hope all readers noticed the letter in last week's RURAL PRESS by Mr. Bryant, intimating that if California will pass a no-sale law for wild game, we will be in line with surrounding States and probably farmers can be restored to their natural shooting rights and be relieved from trespassers who hunt for the markets. If it is true that market hunters are the most grievous intruders upon private lands, which might be inferred from the total amount of killing they do, then to destroy their motive might greatly reduce the trouble. We believe it might work some hardship to farmers who may shoot for sale, just as some farmers may do mining in their back fields to make a few dollars for idle time, but we presume there are but few who do this; and they would probably be content to forbear from selling for the sake of other farmers who are being run over by trespassers. Affirm the land owner's right to shoot on his own property and to exclude others from it; affirm his right to destroy any wild life which is actually mining his products, and remove the temptation to wanton destruction by making game unsaleable, and it seems to us the situation will be much improved. Game food supplies have a good substitute in poultry products, and domestication of quail and pheasants is just as legitimate farming as is the growing of gallinaceous and columbaeous birds.

The Sufficiency of Potatoes.

When we were reading a Danish report citing the case of "Frederick Madsen, a gardener, a sound and strongly-built man, but one who has never done anything to develop his strength," we thought we had a portrait of gardeners known to us whose hardest work seemed to be to get new landscape views while leaning on the top of the hoe handle. But we quickly saw that we did Mr. Madsen an injustice, for the writer was not discussing physical exercise to develop strength, but rather feeding for strength. And that interested us also when it came to exaltation of the potato as a food for hard workers, for it continued: "This gardener has for about ten years lived very plainly on rye bread, potatoes, oat and barley porridge, etc., and has never touched meat. For forty days he lived exclusively on potatoes, and, contrary to what is generally supposed, this food proved easily and almost fully digestible. On this diet he does his gardening work, including digging and other severe work, and in spite of his extremely frugal living, usually poor in albumen, he can get through quite as much work as any other man." This is, of course, heresy to protein

and it is not the only evidence which has led us to wonder whether protein was not really collecting some popularity not strictly due. However that may be, we are interested to see the claim for potatoes, and to announce the coming exaltation of the lowly tuber through the organization of a national potato association which is being engineered by William Stuart at the United States Department of Agriculture, who is secretary thereof and desires to hear from California potato growers. Probably he hopes to find someone who will beat King George of England as a spuddist. It is announced that a potato weighing over 3½ pounds attracted much attention at a recent show at Horticultural Hall, London. This abnormal vegetable had ten eyes and was exhibited by King George's head gardener at Frogmore. If that is the best he can do, George must be counted a small potato grower, judged by California Standards.

An Early California Millionaire.

The story comes across sea and land that the Orbachs of Russia are enjoying the prospect of cutting a melon which has been a long time getting ripe for them. It is said that they will "share in an estate of between \$16,000,000 and \$20,000,000 which was left by an uncle, Herman Orbach, who died in San Francisco thirty-two years ago. The estate has been in the hands of different surrogates during that time, and that lately advertisements in Russian newspapers to locate the heirs attracted their attention." The only really instructive item in the above is the testimony to the value of long term advertising, which we insert at the suggestion of our advertising manager. If you wish to get a thing a third of a century hence, begin advertising at once. We are surer of that than we are of the rest of the story, which runs this way: "When the uncle, who amassed his fortune growing fruit, died his affairs went into the hands of a surrogate and since that time the surrogate has been advertising for heirs." That has a lot more about advertising, too, but never mind that. What we doubt is that any Russian or any other man amassed a fortune of sixteen to twenty millions growing fruit thirty-two years ago—nor since. We add the last two words because the nurserymen are about sold out for this season, and we can afford to be bold and reckless.

Queries and Replies.

Querists must submit full names and addresses.

Apple-Leaf Aphis.

To the Editor: I am sending herewith a small piece from one of my young apple trees. If you can, will you kindly tell me what the insects are on it, and what I had better do for them? This is from the only one out of over 1000 young trees I can find these insects on. Late last summer I saw a great many small black ants on the tree, and there were a good many of the insects on the leaves, but only a few of the small black dots on the stem.—G., Ukiah.

The apple twig which you send is infested with the eggs of the leaf aphis or leaf louse. These eggs are very difficult to kill. A good thorough spraying with lime-sulphur might, however, get rid of many of them and would be good for the trees otherwise—diluting according to condition of tree growth. The chief campaign against the leaf aphis, however, must be made early in the growing season, just as these pests are beginning to hatch out and to accumulate under the leaves of the new growth. They should then be attacked with properly made kerosene emulsion or tobacco extract with a nozzle suited to land the

spray on the under side of the leaves. Unless these pests are attacked early in the season and repeated if necessary, your apples on bearing trees will be ruined so far as they attack them, being small, misshaped, and worthless. On young trees the destruction of the foliage is fatal to good growth. You are fortunate in only finding one tree infested. The probability is, however, that there are others also, and you must be ready to strike the lice early and hard to keep them under control.

Root-Crown Grafts as Yearlings.

To the Editor: I am sending you a tree from some nursery stock I have just received for planting forty acres. The stock is sold as "first class" and I am paying a good price for the same. I am not sure but this is affected with "crown gall" and that is what I wish your judgment on. Quite a large percentage is like this sample. I cannot afford to make a mistake and dare not trust my own judgment. I accepted these trees under protest and subject to thorough inspection, so I am under no obligation to keep them. Imperial prune trees are scarce this season, but I had better wait another year than set something that will not turn out well.—E. P., Healdsburg.

Our judgment is that the tree which you send does not show crown gall, but does show an excess of callusing due to root-crown grafting instead of propagation by budding in the usual way. We do not consider a tree made this way as strictly first class, although we believe you will get a satisfactory growth of such trees providing you examine the union from time to time after planting and do what seems to be desirable to assist it to fully heal over soundly and solidly.

We are a little nonplussed at the number of samples of such trees we are called upon to examine this year. We have never seen so many before. It looks as though some nurserymen were trying to make use of old roots by cleft grafting at the crown and working off the product as first-class yearlings worked in the ordinary way. Such trees seem to be vigorous and healthy enough, but coarse and ugly and badly upset at the union, which must be watched to secure good, sound growing over, as previously stated.

Cutting Back Frosted Eucalyptus.

To the Editor: We have several acres of eucalyptus trees: rudis, rostrata and globulus, and as many of them are so badly frosted, we are not sure whether they should be cut off to stimulate their sprouting or should be left alone. They are three and four years old. If we should cut them off, how far from the base shall we cut them? Should it or not be done now? Should the surface be covered with grafting wax or should it be left to heal over of itself?—M. C. E., Oleander.

It will require a little time to determine just how far down your eucalyptus trees have been injured by the frost. If you find on cutting into the bark that the inner bark is discolored, that is, brownish instead of white, and if the bark is cracked somewhat, then the probability is that the trees are killed to the ground, and should be cut off about at the ground surface to allow for sprouting from the roots. It is not necessary to do this at once, unless by cutting you can find out that the bark is discolored to the ground. It is a good idea to cover the wound made by amputation with paint, or grafting wax, but it is not essential to do so, and few would go to that trouble except with cherished yard trees. If you desire trees with a single stem, choose one shoot and remove others as they may break out.

Undesirable Almonds

To the Editor: I am sending you under separate cover samples of almonds grown by me in what seems to be an exceptional locality, so far

as climate is concerned, unless lack of moisture shall be an important factor. I am sending these samples, first, to ask you to name the different varieties according to their numbers. Those marked No. 1 seem to be the most prolific and to be from two to four weeks earlier than the others. I see very little difference in the others, either as to their bearing qualities or the time of maturing. They were all grown from trees obtained from a California nursery. Where these were grown we have had about 8 inches of rainfall this season, and this is the third year since the trees were set out. How much moisture is considered necessary to grow and mature almonds? When trees have reached considerable size and age, will 8 to 10 inches of moisture be sufficient to keep the trees alive and bearing?—J. G., Asotin, Wash.

The almonds which you send are too inferior to be considered of commercial account in this State. They all have a very bad habit of doubling the kernel or, as it is sometimes called, the production of twin kernels, and these are the worst possible shape for twins. The standard for commercial almonds is a single kernel, plump and well filled. Although in early times the philopena proposition in almonds was so popular as to cause one of the budded varieties to be called "Routiers Twin", no one would think of planting a nut with such behavior at the present time. The amount of moisture required to grow almonds in this State depends upon the depth and character of the soil, for the almond is a very deep-rooting tree in a deep soil. Almonds are actually produced with a rainfall of ten inches and upward in different localities. Any amount less than that would have to be supplemented by irrigation to keep the trees vigorous and the nuts large and profitable, unless they could supply themselves by drawing upon underflow.

Strawberries in Succession.

To the Editor: We would like very much to find out if there is any reason, in strawberry culture, when the vines are removed at the end of the fourth year, why the ground may not be thoroughly plowed and again planted to strawberries?—M. L. P., San Francisco.

It is theoretically possible to grow strawberries continuously on the same land by proper fertilization and irrigation. Practically, the objection is that certain diseases and injurious insects may multiply in the land, and this is the chief reason why new plantations are put on new land and the old land used for a time for beans or some root crop, so that the soil may be cleaned and refreshed by rotation and by the possibility of deeper tillage. The latter is an advantage of considerable moment.

Orange Seed from Frosted Fruit.

To the Editor: I am going to grow orange seedling stock. Of course, the most important thing for this purpose is to get good seeds. But where? I am afraid that the seeds put on the market this year are taken from frozen fruits. My question is, Does, or better to say, did the frost this year injure the germs of the seeds of frozen fruit, and if such seeds are sown can we expect that they will appear? I will sow a few seed taken from frozen fruit for experiment. I will write you the upshot.—J. G., Lindsay.

We know of no test, which would be the only unimpeachable evidence. At the same time we have no doubt that such seed will not show injury by frost.

The Delicious Apple.

To the Editor: I am sending you a sample of Delicious apples grown on my place in Tuolumne county. The size is a fair average; some are considerably larger.—Frank J. Ralph, Sonora.

These are as good a lot of Delicious as we have seen. The variety is making good in this State, especially in the higher foothills of both the Sierra Nevada and the Coast Range.

Orchard Hints for Beginners.

Potatoes in Orchard.

To the Editor: We want to ask your advice regarding the planting of potatoes on our ranch. The ranch is in the Santa Clara valley, about one mile from Los Gatos. It is on a foothill, so the ground is slightly rolling and drains well; the soil is good and there is no hardpan on the place so far as I know. The place is planted in prune trees, some of which are quite old. As the trees are planted quite a distance apart, we felt that the place might be planted in potatoes without damage to the prunes, but have decided that we had better not do anything until we have your advice about it. Will you please tell us if potatoes can be wisely planted under the existing conditions, and if so, what kind is best to plant and when should planting be done?—B. W., Oakland.

It is very doubtful whether the growing of potatoes among your fruit trees would be at all profitable or satisfactory, except in the fact that in order to get satisfactory results with potatoes the ground would have to be well cultivated. There is danger that the potato crop might use up some of the moisture which the trees ought to have. On the other hand, the thirst of the wide-spreading roots of the trees might prevent satisfactory growth of the potato. Common experience is that crops should not be grown among old trees, either for the good of the trees or for the good of the crop, and this is particularly applicable this year because the rainfall is so short. If you care anything for the trees, it would seem to be wise to cultivate well and give them the fullest possible advantage of whatever rain comes this year. Again, the potatoes should be planted much earlier than this so that they might use surplus moisture while it is falling in a year of liberal rainfall. We do not think your undertaking promises any profit, although, of course, a few potatoes for your own use might be grown to advantage by running one or two rows down the middle distance of the trees.

Experience as a Basis of Training.

To the Editor: As I am interested in horticulture I would like to ask if you could send me the names and addresses of managers or owners of fruit farms. My intentions are to attend the university along that line, but before the theoretical part of it I would prefer some more experience. My only experience has been on a Michigan farm, which did benefit me greatly. I am 20 years of age and graduated from the Crane Technical School. I should be very thankful to you if you will grant me this favor, or any advice along this line that you may deem necessary. —R. A. R., Chicago.

It is not possible to indicate individual fruit-growers, as you request. There are probably not less than 25,000 fruit-growers in this State, and they are found in nearly all parts of it. The best way to make observations on fruit-growing methods and to become acquainted with the people is to visit the different localities which are famous for special fruits, and in this direct way secure the information which you desire. There is usually no difficulty in getting employment during the fruit season, which extends from May until September in the different districts, according to the kind of fruit grown.

You are right in laying a good foundation in experience and observation before taking university work. The best agricultural students at the University are those who have already "found themselves" on the farm.

Callusies Not Root Knots.

To the Editor: Under separate cover you are being sent two young Bartlett pear trees of a lot I bought from a nursery. Is the tree diseased and unfit for planting, as some of my San Ramon valley neighbors declare? The nurseryman claims that pears do not have root knots.—S. L. E., San Francisco.

The trees are not affected with root knot, although it is a mistake to say that the pear never

does have this trouble. The trees you send do not have knots, but they are coarsely made crown-root grafts which show a good deal of callusing at the union, and this is probably mistaken for knots. The top growth during the last summer shows that the trees are vigorous and will probably succeed, although a much smoother union would be desirable. In view of the growth they made last year in the nursery, they would not be subject to condemnation.

Beans in Orchards.

To the Editor: I have been advised to plant beans between walnut trees while they were developing into bearing. My land is at Elsinore and I expect to be a permanent resident there after April 1st next. I wish to follow the best advice I can get. Customarily the walnut is inter-set with apricots until they are in the way of the walnut growth, but this advice to plant beans comes from a Ventura man and, as they are so successful in bean culture in that vicinity, I thought it worth getting your idea of such inter-setting.—W. F., Tacoma, Wash.

It may be the lima bean to which your Ventura correspondent refers, for the lima is largely grown in that county, or he may refer to the white or the pink bean, which are rather more hardy and do much better than the lima bean in interior situations. This matter you can decide after arriving, for beans are usually planted in the latter part of April or in the early part of May, after all danger of frost is over. You must find out first how the lima bean behaves before any large undertaking with it. Ventura experience is no guide for Elsinore. Soil, moisture and heat are all different. No man should be a plunger in bean-growing. He ought to have some local demonstration to rest upon.

Cow Feed in Apple Orchard.

To the Editor: What would you advise to plant for cow and pig feed in an apple orchard: the trees are twenty feet apart. Kindly tell me some grass seed to plant on the outskirts of the orchard to keep down the weeds? We have just one acre under cultivation.—R. F. M., Mill Valley.

Unless you have water available for irrigation you should not attempt to grow any crops in your orchard, if the trees are valuable to you. If you can irrigate during the dry season, there is nothing so good for the soil or for the production of cow feed than alfalfa, but if you are depending upon rainfall, the trees should have the full use of the land and the moisture conserved in the soil by clean summer cultivation. Otherwise apples are apt to be unthrifty and unprofitable. Cow feed can be had in the interior by growing Egyptian corn between young trees if the land be moist or irrigated, but that would not apply to your situation nor to old orchard. Besides, you should keep down weeds by cultivation, not by trying to grow—unless you have irrigation for rye grass or alfalfa.

Root Knots Again.

To the Editor: In trying to arrange with an experienced nurseryman for the purchase of a small lot of almond trees, I mentioned that I did not want any affected with root knot. He replied that possibly there might be a few with that "disease," but that all that was necessary was to have a sharp knife and cut the knot out, before planting: that it would soon heal and be all right. Will you be kind enough to let me know about this: Would the trees be in good condition if the "knot" was cut out, or, in other words, would that remedy the trouble? Would it be advisable to plant the trees after cutting out parts affected, or would it be advisable to throw out all of that kind?—W. J. E., San Francisco.

Nursery trees which have had knots removed from the root crown or from the larger roots near the root crown should not be planted. There is too great danger of the knots reappearing. Sometimes knots occurring on smaller roots at a

distance from the root crown can effectively be disposed of by removing such roots. The only safe way is to plant clean-rooted trees and then to watch them for a few years after planting, to see that the knots do not establish themselves on the main roots. If the main roots can be kept clean of the development of knots, growth on the smaller roots can take place without interfering with the growth and profitability of the tree, if soil and moisture are right for thrifty growth.

LADYBIRD BEETLES.

[By A. J. Cook, State Horticultural Commissioner.]

The beautiful little ladybird beetle, *Hippodamia convergens*, has really become a noted individual. It is worthy all its fame. It lives almost wholly on aphids (plant lice) or other pests, and so does only good. It collects in great numbers, often many thousands, and so can be easily collected by the millions. It must be a promiscuous feeder on the many species of aphids, hence its immense power of reproduction, and the fact of its collecting in great heaps in the Coast and Sierra mountains. It hibernates in the cold seasons, and thus we are able to collect them in winter (see Monthly Bulletin, Vol. 1, No. 3, p. 71) and hold them in cold storage until the aphids are in condition to serve them as food.

Frederick Maskeu, Chief Deputy Quarantine Officer of the State Horticultural Commission, was the first to utilize the above facts. In a report which he made to J. W. Jeffrey, then State Commissioner of Horticulture, of investigations made in the Imperial valley in 1911, now on file in this office, I find this statement: "Probably the first attempt to introduce predators and parasites of *A. gossypii* in commercial quantities in the Coachella and Imperial canteloupe fields was made by the writer, acting as the agent of the State Commissioner of Horticulture during the month of May, 1907. . . ." This was followed by sending and taking in person to Coachella nearly 2,000,000 of *Hippodamia convergens*. Reports of the results of these sendings were such that the State Commission of Horticulture has continued the work and greatly increased the numbers of colonies sent each year since that time. I think to E. K. Carnes, long Superintendent of the Insectary, belongs the credit of discovering and utilizing the fact of large aggregations in the mountains and adapting cold storage as a means of making the discovery practical.

Value of the Ladybird Beetles.—Two professors of entomology of the University doubt the value of these insects. One of these has studied the question in the field, among the melon plantations of Imperial. On the other hand, many of the canteloupe growers feel certain that they are of immense value. The fact that they hibernate in such large numbers argues that they are immense feeders and must be quite independent as to the kind of aphids they devour. Frederick Maskeu, a very accurate and thorough investigator, feels certain, after weeks of study and observation in the Coachella and Imperial valleys, that the ladybirds are of great importance in the aphid battle.

Our Policy.—We are asked, what is to be our policy this season. It is to push the work of collection and distribution as never before. Already we have collected for distribution two million more than last year, and we hope to increase this by several million. We hope and believe that this ladybird will victimize all our destructive aphids, and we wish to give them a colossal opportunity to prove their value.

This year we shall make an investigation in the field, so thorough that we shall have no question as to the economic importance of the *Hippodamia*. If we prove it to be a mighty factor in clearing our fields, gardens and orchards of the pestiferous aphids, then next year we will double our efforts to collect and distribute these little friends that we may lessen the frightful losses which are now suffered by our farmers and fruit growers the country over.

It is an interesting fact that we are importuned by orchardists and others from many States, from Germany and even far away New Zealand, to send to them an installment of these little friends. Of course we cannot undertake this service, much as we should like to do so.

Orchard Views of Santa Clara.

[By OUR ASSOCIATE EDITOR.]

The greatest orchard area of California, the Santa Clara valley, has such wonderful merit that a systematic story of its excellence, put together with flowery words of praise, is too well deserved. However, everyone who knows of the valley knows of its worth; there is no use duplicating praise, and there is use, perhaps, in telling of a few little observations and suggestions resulting from a recent trip through there.

Irrigation.—The valley looks to be in first-class condition; the trees are all budding nicely, with plenty of good strong buds; there has been no loss from frost, wind or other unfavorable elements. Up to now all is well; all except water. If present conditions made the crop, the crop would be a big one; but it is rain in plenty or irrigation in plenty, or things won't look so good pretty soon. Still, that is the case in lots of California. It's not just the soil and climate that makes the crops; it's the water that goes on. That water can come from irrigation. The best farmers are practically all getting in their pumps where pumps are needed and there is water, and for the big profit that would result it is funny everybody with water beneath his feet won't get it up where the roots will get it.

Large Sizes.—Water not only means a good crop in place of a small crop, but it means large sizes instead of small sizes, and large sizes mean great profits. Every year large sizes are more desired. As many prunes as would make a ton of 90s would make a ton and a half of 60s. At a basis price of 4 cents, that would mean \$70 for the small crop, \$150 for the large one, and everything over the four-size basis is paid for with such a premium that the net profits run out of sight of the net profit from small prunes and crops.

If a person has not the water for irrigation, the scant rainfall makes many growers contemplate thinning later on, if conditions don't better. That will kill two birds with one stone. It will help the trees in time of need, and it will make the sizes so much better that the net returns will be comfortably boosted.

And then think of what help cultivation will be to trees and sizes. If water can't be put on, nothing can be better than conservation of moisture by good tillage. It's fine for the soil and trees every year. On one big, fine orchard when they did irrigate, the manager last year was bound to cultivate thoroughly; he bought an orchard tractor and he kept it going. The irrigation and the fine cultivation did great things there for crop and sizes, and at an expense that made the owners feel joyful around the pocket-book.

Winter Irrigation.—But speaking of irrigation, it seems regrettable that more irrigation is not done in winter. The ever-increasing demand for water makes the wells less efficient every summer, and many with wells will not have as much water as they would like, unless the season changes, that is. A good heavy irrigation in the early winter not only would fill the ground with moisture for the whole year, and give the well less to do in summer, but it would help make a fine cover crop, whereas in practically all orchards this year the cover crop is so small as to be almost worthless. The only way that life can be kept in the soil is to put life into it, and cover crops furnish the cheapest kind of life there is. Unless the writer is in error, the chance of gaining by winter irrigation under the circumstances is greater than the chance of losing one's labor and money through copious rains that might come.

Pests.—There was nothing in the valley for the January freeze to hurt. Even the citrus trees were untouched, and there is a big indication that the freeze did lots of good in cleaning up the brown apricot scale. Anyway, almost no young scale can be found, even where old scale has been and where no *comys fusea* has been.

Thrips likewise up to the time of our visit were quite backward as compared with former years. Some orchardists apparently will have to spray for them, others will spray because of the check that spraying has against damage in future years, and others who once fought thrips hardly thought

that spraying would be necessary this year. Yet everyone who had known the benefits of control was already for action in case action was necessary and was keeping close watch to see that the outfits would be on the ground as soon as injury was threatened.

One way to tell how they are coming from the ground is to put a white cloth under a tree on a spot where many thrips would likely have dropped from the branches, covering the edges of the cloth with dirt to prevent the thrips from escaping; then the number that would come up every day will give a good indication of the way they were emerging. Still, observation of the buds is the real way to do.

Fix the Hose.—One thing that many people neglect in spraying is to protect the hose on the spraying tanks from excessive strain. As the outfit moves along there is a big strain on the hose where it is attached. If it came out straight behind this strain would not exist, but it juts off sidewise and the drag all comes on at an angle. An ordinary bale rope wound around this tightly by a half hitch for a foot or 15 inches is a big protection and easily put on.

Nitrate Spraying.—It is good to report that a great amount of spraying with nitrate of soda is being done as an experiment and there will be lots of data next fall on the success. It must be remembered that the good effect on apples last year was on trees that were in poor shape and that trees in good vigor might be unaffected—probably would be. There was the suspicion that early blossoming might be caused and this would let the trees get a head start of the thrips. Apparently this does not occur. The spraying will largely be done with only half a pound of nitrate to a gallon of water, and a pound of caustic to 10 or 15 gallons of water.

DRIED FRUIT SITUATION IN EUROPE.

[By OUR ASSOCIATE EDITOR.]

Europe is, in a way, the determining factor in the dried-fruit market, for sufficient is used there to greatly affect the supply for this country. The prices that will be secured for dried fruit here by the grower for the remainder of the season will thus depend largely upon how much Europe takes.

One of the most well informed men in California on the European situation is Mr. Max Schukel, of Schukel & Co., San Francisco, dried fruit brokers. Mr. Schukel has returned from a business trip to Europe with the latest information on the market and gives us the following data.

In one way conditions are strong and in another weak. There are few stocks on hand, and therefore a possibility of selling lots of fruit. That is the strong side of the market. On the other hand, financial conditions are far from satisfactory and buying is limited to present needs. A continuation of present conditions will therefore mean that enough fruit will be purchased to supply consumers, but there will not be sufficient buying to make a big call for fruit.

The financial difficulties are due to the Balkan trouble, which with its connections, has made interest rates higher than they have been since the panic. If everything could be settled, it would mean a great increase of trade. If war breaks out between Austria and Russia, as some are fearing, it will stop the trade altogether.

As far as supplies go, England has but half of what was on hand a year ago; France has very little fruit left; and German grocers have enough for the current demand, though the big wholesalers in the main distributing centers are "sailing close to the wind" with dried fruit. Dried fruit in this talk means mostly prunes, as the other fruits that Europe buys are about all sold off here.

Shipping Troubles.—The season got a bad start through shipping troubles. Fruit from California goes to Europe by two routes. One is down to the Isthmus of Tehuantepec, across the isthmus and by steamer to Europe. This is the cheapest route and most used. However, when there is a rush, the fruit is shipped by rail to New York

or other Atlantic port and then across the water.

Europe, like America, wants fruit for the holidays, and there is usually a hurry to get it there in time. This season there was a big delay at Tehuantepec and fruit shipped that way did not get in until well into January. Other was shipped to New York and met with a delay of several weeks through the rush of other business and did not get to market until after the holiday trading was all over, either, so the buying was greatly hindered in that way, and all the advantage of holiday trade was lost.

Just a hint of what the canal will do. The opening of the Panama canal, though probably it will occur too late to affect the 1913 crop to any great extent, will prevent all such trouble and do a lot of other good.

In the first place, there will be no special delay in transit. Steamers will run on regular schedule and shipments will be moved very much quicker than even by way of New York. Therefore the holiday trade will have its full effect and be of big advantage.

In the second place, buyers will be able to work to better advantage. No business man wants to buy goods without knowing when they will arrive. Present methods of shipment are very uncertain, and the establishment of a quick and certain schedule will help trade greatly.

In the third place, the fruit will arrive in much better condition, can be sold quicker, and will be more acceptable to the ultimate consumer. According to the custom now, that is, by shipment across the Tehuantepec, the fruit suffers from bad handling and from temperature changes. It has to be unloaded from steamers on the Pacific side, loaded on cars and reloaded on steamers on the Atlantic side, all in a tropical climate and by Mexican peons, a very unsatisfactory kind of labor. When the handling is over, the packages have suffered by handling and the fruit has suffered from climate.

Loading the fruit in San Francisco, keeping it at a fairly uniform temperature in the ship's hold and unloading it at Hamburg is an entirely different and better proposition.

Better markets.—In general, California fruit, especially prunes, are meeting a better reception in Europe than several years ago. Formerly French prunes were considered standard, but the last two years the French crop has been so small that buyers had to be satisfied with California fruit instead. Now they are most accustomed to California quality, and the market is open to further development. Better shipping and the arrival of the fruit in better condition than it was still further increase this advantage.

For the present, then, the demand is sufficient only to keep the prunes moving steadily and not very fast. For the future, there ought to be a bigger market and a better.

FROZEN ORANGES AGAIN.

To the Editor: Apropos of your article and the communication of E. S. Thacher in your issue of February 15, on frozen oranges, is the following paragraph from an interesting article on "The Two Freezes of 1894-95 in Florida and What They Teach," published in the Year Book of the U. S. Department of Agriculture for 1895, page 162, by no less an authority than Dr. H. J. Webber, now connected with the Agricultural Department of the University of California. The writer says:

"The frozen oranges and pomeloes remained firm and solid for fully a month after the freeze, and were eaten in great numbers and also shipped to Northern markets. It is safe to say that there has never been a time in the history of Florida or America when so many oranges were eaten in so short a time. The cautions of physicians were unheeded, but the result was not disastrous, as many feared. Indeed, such sickness as occurred from eating frozen oranges was unquestionably due to excessive indulgence. Many of the frozen oranges were sent to Northern markets and placed on sale while still juicy and palatable. In some cities their sale was forbidden by the health authorities, who claimed they were injurious, but this claim has been thoroughly disproved by their extensive use, as above described."

(Continued on Page 331.)

Eastern Live Stock Situation.

[Written for the PACIFIC RURAL PRESS by
W. M. CARRUTHERS.]

While East this last time the writer had the pleasure of spending a day or two at the Chicago Stock Yards renewing old acquaintances and picking up data which might be interesting to our readers in California. At one time the writer used to buy for one of the commission houses on the Chicago market and while engaged in this work he usually found himself in the yards two or three days in the week, so having the RURAL PRESS in mind he thought an article along live stock conditions in general from reliable sources might make good reading for our subscribers. It may seem like a fairy tale to state that on a Monday and a Wednesday morning on the Chicago market can be found as high as sixty thousand hogs, forty thousand cattle and as many sheep. If the cars which carry this stock to Chicago were to be strung out in Indian file, they would reach from this city to Milwaukee, a distance of eighty miles, nearly as far as from San Francisco to Sacramento.

Cattle Data.—Upon inquiring what number of cattle were on feed in the Middle West as compared with last year, the writer ascertained the following: In the territory contingent to the Chicago market it was the opinion of one of the leading commission houses that there were about ten to fifteen per cent more cattle on feed than there were at the same time last year. Around Kansas City and the territory tributary to that market it is believed that there is ten or fifteen per cent less than there was at this time last year. At South Omaha, the gateway to the West and the center of one of the greatest corn belts in the country, the amount of cattle on feed was much the same as last year. The territory tributary to St. Louis has close to fifteen per cent more cattle on the feed than last year. Around such markets as St. Joseph, Sioux City and St. Paul the estimate is that there is a third more cattle on feed than last year. In the center of the Rocky Mountain country, around Denver, the men who claim to know state that there are fifty thousand cattle more on feed than there were last year.

The prices for thin or stock cattle are on a level never before reached in the trade's history and although there are oceans of corn on hand to feed, it is causing grave consideration whether to buy or not to buy. To quote the words of one cattle man, "It has become most complexing." The great bulk of rough feed and corn coupled with the present and prospective prices for fat cattle is the one incentive to cause men to buy thin cattle. Without this condition the present high trade in thin cattle would be impossible.

There is much in the outlook, if statistics are worth anything, to warrant the belief that purchasers of thin cattle at current high prices are by no means bereft of reason. From both the cattle feeder's and the consumer's standpoint, the beef cattle situation is alarming. With a total cattle supply in this country estimated at 36,000,000 head, other than milk cows, against better than 50,000,000 head twelve years ago, accompanied by a twenty million increase in population in the United States, is it then small wonder that feeding cattle and beefsteak are both high or that they are confidentially expected to continue so for some time to come.

Future of the South.—The sentiment around the Chicago Stock Yards seems to be general that the South must be depended upon to furnish no small proportions of the future meat supply of the country. One man who is rated as authority on this subject says there are millions of acres of idle land in the far Southern States which could be utilized for the production of beef cattle and much land in States like Kentucky which could be utilized to better advantage for this purpose than for present purposes. The eradication of the cattle tick is the great obstacle in the way at the present time regarding the utilization of these lands. With Government and State aid this obstacle can be got rid of.

Take our own State. How many years ago is it that the cattle tick infested country came very close to San Francisco, but thanks to our compe-

tent State veterinarian, our State is now almost free from this disease. At present 150,000 square miles of Southern territory has been released from tick quarantine and more territory is being added to this every month.

Take for example the 2,500,000 acres of Cecil clay which is found in Alabama, Georgia, North Carolina, South Carolina and Virginia and the 1,500,000 acres of Hagerstown loam found in Kentucky, Tennessee, Alabama and Virginia. Investigations made by the Bureau of Soils show that these two types of soils are particularly adapted to cattle production and grow the finest grasses and forage crops of any soil in the country.

This is one of the sources that the Chicago market expects to draw its thin and stocker cattle from to help supply the feed lots of the great corn belt country. The day is not far away when this great Southern country will help to make up the deficiency in the cattle production which now prevails. Millions of dollars have been invested in these Southern States in the last three or four years in the cattle industry and the fruits and labor of the capitalists that have invested there are now beginning to return profits.

Mr. Cudahy, of hog packing fame, thinks that there was never such a shortage in the meat supply in the history of the world as exists at the present time. Anybody that can figure in pounds the shortage indicated by the government report of last month will find that the shortage runs up to 1,200,000,000 pounds.

Hog Data.—A hog buyer remarked to the writer that he believed that hogs would sell at \$9.00 or higher in April on the hoof. His reason for saying this was that most of the hog shippers from the country with whom he talked say that next summer is the time when we will feel the real shortage of hogs. The provision situation looks stronger every day. We are just finishing the four big packing months, which are generally months of light trade, yet we have accumulated little or nothing in the way of product. We are now just at the beginning of three months when receipts of hogs are generally light and trade big. It is the beginning of the cotton planting season and when the colored man works he must have his pork.

On inquiring from Clay Robinson & Co. of the hog conditions which prevail at the present time at the great market centers, the writer learned the following: That never before have producers shown such wisdom in marketing their fat hogs as now. As soon as prices begin to lower there is a quick shutting off of supplies which tends again to make the market soar higher. This is a case of the supply and demand governing the price, the advantage being with the farmer. Hog buyers on the market claim that producers are surely playing their part well in the market game this season. They can well afford to take a determined stand against any effort of buyers to lower prices. There is every evidence that hogs are wanted, and urgently, even around the high price.

This is shown by failure to conceal the demand for supplies every time that the receipts are reduced to moderate proportions. It is then that the small packer, the big packer and Eastern shippers eagerly bid the price up in order to get their share of supplies. It seems to be the general opinion that there is nothing in present and future market conditions to cause belief in much lower prices for hogs.

Producers Strong.—In the first place producers are in a strong position to nurse the market as they have an abundance of reasonably priced feeds and conditions are excellent for hogs to put on big flesh and gain. In the second place, those in a position to know claim that there are around 5,600,000 fewer hogs in this country than a year ago. The seven corn States alone show a combined decrease of 4,000,000 head. In the third place, hog products in the packers' cellars have been heavily drawn upon, the consumptive demand for fresh pork meats is insistent, the Southern demand for cured hog meats is broad, and exports of lard are of good volume. In the fourth place, the shortage of hogs on feed and available for market during the next several months is far greater than the shortage in total numbers, as most young sows are being held for breeding pur-

poses to increase the crop next year, the general shortage being placed at 15 to 20 per cent, mostly at the latter figure.

The difference between light hogs and heaving packing sows seems to be getting wider all the time and the gap now between them is 25c per hundred. It is the opinion of hog men that the difference will grow wider as the warm weather approaches. On account of the mild winter that the Middle West has had this season, hogs have made remarkable flesh gains and the packers believe that in this month hogs will come on the market carrying good weight. Every healthy thrifty sow is being held back for reproduction purposes and after the spring pig crops have been weaned they will be fattened, insuring a good run of lard hogs during most of the summer months. There are some in the trade who predict that ere the summer is over that the difference between light and heavy hogs will be a dollar a hundred. This prediction seems to be within reason when the fact is considered that cholera has reduced the pig crop in greater proportions than any year for some time past and on this account a great scarcity of fresh meat hogs may be expected this year.

General opinion in Chicago around the stock yards is that feeders are less concerned regarding what they will get for their products than any other time in the history of the stock yards. There seems to be no heavy runs of cattle and hogs on the market to glut it and force the prices downwards. Every farmer seems to have plenty feed and would rather feed it to live stock than sell it otherwise on the farm. The farmer believes that there is a great deal to be gained and nothing to be lost by holding on to his stock and finishing it.

Sheep Conditions.—Sheep conditions seem to be very much along the lines of cattle and hogs, and feeders expect to make good profits on what they are feeding this winter. As years go on and the country increases in population we seem to get more mutton eaters. The writer believes that such conditions will prevail on the Coast ere long and the men who are breeding sheep strictly for mutton will reap handsome profits.

OFFICIAL MILKING MACHINE TESTS.

Even on a matter of common belief such belief is strengthened by the knowledge that the subject has been given a thorough and exhaustive test and that results have been as it was thought they would be. Official confirmation of something upon which a person is not quite sure is even more welcome.

It is being appreciated that milking machines are getting to be an important feature in dairying, and a thorough investigation of their use by the New York Experiment Station, confirming the belief of their practicability, is of value.

The results of the investigations are published in Bulletin No. 353 of that Station, and the following conclusions are reached:

1. The milking machine is of interest mainly because of the labor problem. Using two machines one man can milk fifty cows.

2. This study of the influence of hand and machine methods upon the flow of milk covers a period of over four years and includes 71 lactation periods after eliminating the questionable data.

3. The influence of the machine method of milking upon the flow of milk was too small to be measured, even when the other factors were eliminated as fully as possible. It was probably responsible for less than 1 per cent of the variation in flow under the conditions of this experiment.

4. All cows milked well with the machine when they were provided with properly fitting teat cups. Two cows which were failures with hand milking were successfully milked by the machine.

5. Machine milking has proven practicable. The problem now is to develop the machine along the most helpful lines and to learn to handle them most effectively.

Quality Essential.—A basic consideration in the tests was the quality of the milk. Some early machines were satisfactory in getting out the milk and saving labor, but too many bacteria could gain access. With the tests reported here the milk was as clean and good as with good hand milking, and there is no trouble along that line when reasonable precautions are adopted.

The necessary precautions in securing clean milk with the improved form of the milker used (the B-L-K) are few. Those parts of the machine through which the milk passes must be rinsed thoroughly after each milking, using in succession cold water, hot sal-soda solution or similar cleansing material, and hot water; and the teat cups and rubber tubes must be kept, between milkings, in a strong brine solution (10%) or similar germ destroyer. Once a week all parts of the machine touching the milk should be thoroughly washed and steamed.

The ample, but few and simple, air filters must be kept well filled with fresh, dry cotton to prevent entrance into the machine of germ-laden dust.

Dropping teat-cups on the floor or any similar carelessness in handling the machine, must be avoided, since such accidents produce marked increases in the bacterial counts of the milk.

Machine Facts.—A few of the early machines tested gave a continuous suction. All the later machines tested in America use the principle of the interrupted vacuum, by which the action of the calf's mouth is imitated rather than that of the hand milker's fingers.

The teat-cups, by which direct attachment to the udder is made, are conical or funnel-shaped metal tubes with wide flanged mouths to receive the teats. In the older types of machines from six to eight sizes of teat-cups were required to fit all the cows of the Station herd, but with the new form one size of cup milks the herd more efficiently than did the many sizes previously needed.

This is a very important fact, saving much time and trouble and brain work on the part of the milker, and increasing the efficiency of the milking. With these cups, also, the amount of "strip-pings" from the cows has been reduced to a practically negligible amount, and with them two cows were satisfactorily milked that would have been dropped from a hand-milked herd.

To get a sure method of comparison between hand and machine milking, the herd was divided into two parts which were milked the first lactation period either by hand or machine and in the second period by the alternate method. This provided against differences that would have developed through climatic variations, greater age, etc. Leaving out the records of those cows whose production was influenced by accident, abortion and other things which would give misleading results, it was found that the effect of milking upon the productivity of the cows is less than the normal fluctuation in yield from year to year due to such marked variation in yield of individual cows as might occur in any herd of considerable size. In other words, the difference of effectiveness between machine and hand milking was practically negligible.

Six different men were used to manage the machines during the tests and none of them failed to do fairly satisfactory work with the milkers. The essential qualities in running a milking machine are merely carefulness, willingness to follow instructions and reasonable intelligence.

Based on the use by one man of two machines in milking 15 cows, the time consumed each day would be 121.02 minutes, or 4.034 minutes to milk one cow. This is longer than would be needed in ordinary commercial dairies, owing to especial care in weighing milk and attending to some details related to the test.

This two hours, plus one minute, includes the preparation of the machines night and morning, the actual milking, rinsing the machines twice a day, cleaning teat-cups and tubes (done weekly), and washing the remaining parts of the machines.

Whether it will pay to put in the machines will depend upon how a dairyman is situated. He has to have fairly intelligent men to look after the machines, but otherwise everything that could reasonably be asked of machines seems to have been provided, and they give a good saving of time and effort.

securing the services of a superintendent who would devote the right amount of attention to the herd, and in fact this condition prevailed after moving to their new location, until two years ago when the services of R. E. Watson were secured. Mr. Watson being a practical and reliable stockman, a difference in results was soon apparent.

To illustrate, when he took the management there were 200 head all told, but mostly in poor condition. After the first six months, when the ranch was behind, it has been on a paying basis and since then the herd has increased from 200 to 328 head, this after having weeded out a good many of the P. C. Club cows still left and also some young bulls. Besides this, much money has been spent and is still being spent on improving and reclaiming the land.

In this herd the St. Lambert and Stoke Pogis blood predominate, most of the older stock being sired by the following four bulls, which were used as service bulls for several years:

1st. Brown Bessie's Golden Gate No. 59477, who was sired by Recorder 29239, a son of the Chicago World's Fair Champion cow Brown Bessie 74997 and is out of Bosnia, 20 lbs. 2 oz. in 7 days, by Diploma 16219, sire of 61 tested daughters and 15 sons with tested daughters.

2d. Recorder's Boy No. 62780, was a combination of St. Lambert and Stoke Pogis blood, his sire being Kathleen's Roy of Yerba Buena.

3d. Rioter Cuba Exiles No. 66055, own dam was a grand-daughter of the well-known Exile of St. Lambert and had other good relations.

Oregon Golden Sod No. 67379 was a son of Golden Sod of St. Heller, while his dam was a strong Landseer, giving 45 lbs. of 5% milk per day.

As can be seen from the above foundation what Mr. Watson had to begin with was good and since disposing of the above bulls the following have been in service:

Lord Dron No. 76433;

Dos Rios Pogis No. 89008;

Dorindo Darling's Volco No. 89007;

Laura Lee's Asidro No. 75667.

The last named being six years old, is the oldest of the four. Besides the above bulls, several young bulls are being raised, one particularly being well thought of by Mr. Watson is out of Oregon Ella, a 500-lb. cow of the herd.

While none of the cows had been tested until nine months ago, since that time they have been tested by the Stanislaus Dairyman's Testing Association and have proven that they are fine fat producers, one cow having averaged two pounds after being fresh five months, and Mr. Hackett, the tester, considers that of the 150 head being milked, at least 25 can be put on as Reg. of Merit cows. Taking the herd as a whole, they are now giving over a pound a day per head, and of the total a great many are two-year-old heifers with their first calves.

As before stated, under the present conditions all dry cows are turned out to rustle their own living and after a calf is seven months old they, too, are turned out. This is a great advantage in many ways over the average ranch, as the calves are stronger and can be raised at a great deal less expense.

While so far alfalfa hay has been the chief feed, of late some cocoanut meal has been added and next year a systematic feeding campaign will be inaugurated. Like so many other dairymen are doing, silage will be used, and for this reason two 200-ton stave silos will be built. Indian corn will be used for one and sorghum for the other. While Mr. Watson doesn't consider so large a herd can be run at the same profit per cow as a small one, he believes that by feeding well much better returns can be realized.

No special equipment is used on this ranch. The barn accommodates 145 head, having two strings with a large space between them for hay and a drained floor. Eight milking machines were installed last year. These are run by a gasoline engine and the entire 150 head are milked by two men, each man caring for four machines and doing the stripping behind the machine. So far they have been entirely satisfactory, and as is always the case when they are used, a great saving is made in labor by them. Judging by the number of these machines in use around Modesto on pure bred stock, the old idea that they hurt the cow

California's Oldest Pure Bred Jersey Herd.

[Written for the PACIFIC RURAL PRESS by J. C. LOOMIS.]

In a recent number of the PRESS we commented on the fact that Stanislaus had made rapid strides in the increase in numbers of breeders of pure-bred stock.

Since that time we have had the pleasure of visiting not only the largest pure bred Jersey establishment but also the oldest one in California, so Stanislaus county has still more credit due her in respect to her live stock.

The ranch in question is the Rancho Dos Rios, located about ten miles from Modesto between the Tuolumne and San Joaquin rivers and comprises 4200 acres in all.

Twelve hundred acres of the ranch are in the Furlock Irrigation System and the balance can be irrigated from the Tuolumne river. Of the total acreage not half of it is being cultivated as yet, there being 240 acres of alfalfa and 1000 acres of grain in this year. Located as it is between the two rivers, a good deal of the land has to be drained, which is being done as fast as possible, but in the meantime these marshes or sloughs are being used for pasturing purposes and in this respect save a great deal, as all of the dry stock and calves are turned loose to rustle their own feed and practically take care of themselves.

Before going any further into details, it may be well to give a brief history of this herd, it being, as before stated, the oldest herd of pure bred Jerseys in California.

The foundation stock was brought to California at a great expense from New York via Panama in 1868 by Adolph Maillard, who in the early 70's added to it by a carload or two of picked young stock personally selected from the finest Eastern herds of that day. At that time the company's ranch was located at San Geronimo, Marin county, and continued there until five years ago, when they moved to the present location.

For years this stock was improved upon by buying pure bred bulls from the East, the butter

produced being sold in San Francisco where it boasted of receiving the fanciest of prices in competition with all other brands.

Some time after acquiring this herd, Mr. Maillard, as well as other breeders, felt that there was need of a Jersey Club on this coast, their idea being to carry on the Club's affairs in the same way as the American Jersey Cattle Club had started in the East, that is to be able to register their young stock and to keep an accurate record of each cow's ancestry, also to advance the breed in every legitimate way. One circumstance overlooked was the fact that the A. J. C. Club with their larger and more denser populated territory would outgrow the P. J. C. Club, with the result that eventually the A. J. C. Club did not recognize the P. J. C. Club's papers, thereby rating any cow not registered with the A. J. C. Club as a grade. As can readily be seen this worked a great hardship on the Pacific Coast breeders whose calves, even though their dam and sire were both A. J. C. Club animals, had been registered in the Pacific Coast Club were only recognized as a grade and could not demand prices equivalent to their value as breeders.

As the dairy end of this herd was for years the chief source of revenue, this Pacific Coast Club stock was kept on the ranch, but the later offspring were registered in the A. J. C. Club. The P. C. Club stock has been gradually disposed of until at present nothing but A. J. C. Club animals are kept, as in later years the object has been more along the lines of building up an immense breeding establishment.

For a good many years interest in the herd rather lagged until the present ranch was bought, at which time the pure bred animal demanded more attention in the State and new interest was manifested. By this one should not infer that the breeding of the herd had been neglected, but had not been pushed forward as it was either in its early or recent history.

Much trouble had always been experienced in

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Fighting the Big Freeze.

(Continued From Page 321.)

city lies on the slope from the Sierra Madre mountains, in a sort of basin formed by two ranges of low hills to the south and west, with the fruit-growing lands shouldering against the residence districts on the north, east, and west.

There are about 600 acres to the west, 150 being lemons and the balance in oranges. The acreage to the north and east is almost all in oranges, tributary to packing-houses at Pomona, Claremont, and Nard.

Nearly all of the acreage in the west end was fired, and about 2000 acres to the north and east. A large area of orange lands to the north, reaching nearly to the base of the mountains, has always been thought frostless and was not equipped, so our story deals only with the part in the immediate vicinity of Pomona, and recognized as subject to frost.

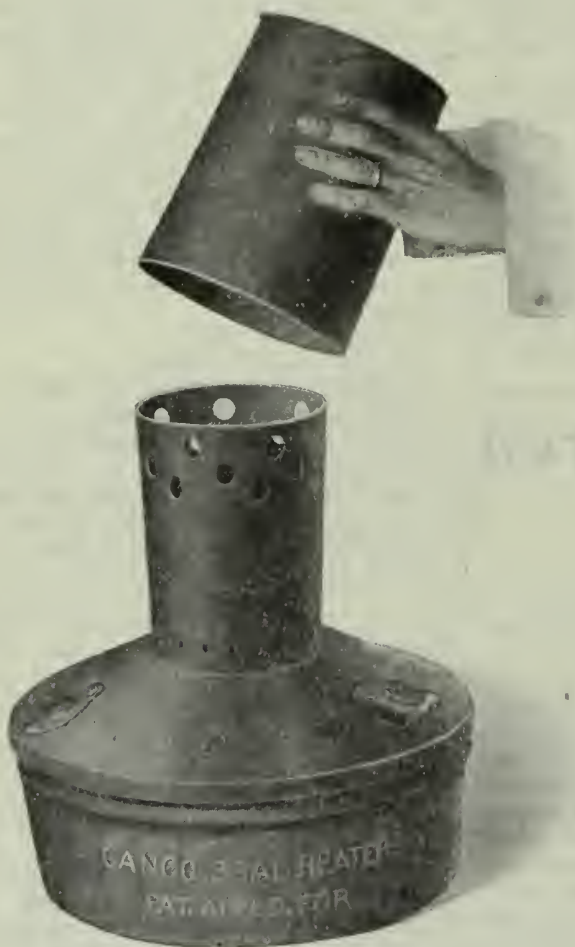
This district was laid out in six gen-

which was hung the number of the station and the temperature as it was reported by the scouts.

Arrangements for calling the growers had been made with the telephone company, and a full list of the names of those who were to fight with heater and torch against the grim and silent enemy was supplied the operators at the telephone exchange, with the lists numbered from 1 to 6 to correspond with the map of the valley at headquarters.

The plan as worked out was that "central" would ring five bells on the line of a subscriber, and when the grower answered it by giving his name and number, he would hang up, knowing what the call was for, without further explanation.

The first sign of danger came on the night of December 2nd, when it began to look bad about midnight. The scouts made two rounds of the valley, but noth-



California 3-Gallon Orchard Heater.

eral groups, to facilitate communication with the growers when the temperature should fall near the danger point in any part of the field. These six groups were placed under three watchmen or scouts, with headquarters at the Park Avenue packing-house of the Pomona Fruit Growers' Exchange, where a complete record of the reports was made for future reference.

Each of these scouts took readings from a number of thermometers, the largest route having 27 and the smallest 21, each station bearing a number. These routes averaged about 11 miles from the headquarters and return, the rounds being made on motorcycles. Each man carried a card, of which an engraving is given, ruled for as many as 20 stations and 8 trips, but no more than four trips were ever made in one night, as it was found that either the fight started or was called off before that many trips were made.

In the office there was a map showing all the region covered, with the orchards to be fired colored red, and all thermometer stations marked with a small nail, on

ing serious developed. Again on the night of the 3rd, with the same results. But on the night of the 5th it was necessary to call the lemon-growers at 10 p.m., and four sections of the orange-growers three hours later. Temperatures did not go very low, but it must be remembered that there had not been any cold weather, and the trees were quite tender. Then, too, it seemed best to have the fighters try their mettle for the first time when there was not any serious danger. Several lost their heads and fired before they were called, and many of them were impatient for the time to come.

The scouts were out a total of seventeen nights in December, sometimes finding danger on the north and west, and then again on the north and east; sometimes along the whole front from the extreme southwest around the north to the extreme southeast. The worst nights in December were from the 21st to the 27th.

The new year was reached with the fighters turned into veterans and confident in their powers to combat the forces

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And Sure



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Hawferco Fertilizers

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If you think you are not getting all that's possible from your soil, we would like you to try these wonderful fertilizers. There is one for every purpose, and if you tell us what kind you need we'll give you some interesting information on the subject.

We must have a pretty good product or we wouldn't be doing such an enormous business. We are the largest manufacturers of fertilizer on the Pacific Coast.

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Hawaiian Fertilizer Co.

244 California St.

SAN FRANCISCO



of Jack Frost. They were the victors in some pretty stiff fights during the month, and a general feeling seemed to prevail that there would be no more of it. Indeed, had not some of the weather-wise solemnly assured us that there would be no severe weather this winter, anyway, because "it never freezes two years in succession"? Also, that "it can't freeze when there is no snow on the mountains"? Evidently there was snow somewhere else!

Pomona Valley Orchard Protection Association

Watchman No. _____ Date _____

Time Start _____

Time Finish _____

	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24	25	26	27	28	29	30
STATION NO.																														
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Watchman _____

Report Card Used by Frost Scouts.

As though in a final supreme effort to crush out the opposition forever, the enemy rallied to the assault on the afternoon of January 4th, the first omen of trouble showing in an exceptionally low barometer. That night high winds prevailed and low temperatures were found only the last hours of the night, for a short time. The night of the 5th came down cold and without much to hope for but hard fighting. The wind came up about 2 a. m. of the 6th, but without the rise of temperature which usually comes with the wind. Instead, the temperature stood steadily at 29°, with the wind blowing a gale. A lull in the wind about 6 a.m. brought the temperature down to 25° for a short time. The maximum for the 6th was only 43°, and by 6 p. m. it was 30°. No scouts were needed that night, as the fight was on before dark in some places. The scouts made three rounds to get data for record, and developed the most unusual thing of the whole freeze. The upper levels were showing the dangerous

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IN USE ALL OVER THE STATE.

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A. SNOW, Lincoln Ave., San Jose, Cal.

low temperatures earlier than the lower levels. There seemed to be a vast blanket of frigid air, slowly but surely settling over the valleys of the south, and all the organization of the Pomona growers was needed to keep safe the precious crops.

At one of the points where the heaviest fighting occurred, the owners had six men and a team in the field, and when the fight got to the hardest, abandoned a part of the orchard and concentrated the effort on six acres of lemons. Other points there were where the fighters lost heart and gave up, not even refilling the pots for the fight the next night.

One of the successful fighters tells me he will have installed double equipment next year, so the victory will be easier and more sure. Most of them are satisfied with the results and intend to be better prepared another time. There is a general feeling in favor of the five-gallon can for a large part of the storage, having a can near each heater so there will be no delay in replenishing the fire at a critical time.

At some places along the frontier there can be seen the evidence of the fierce struggle of the two elements, fire and frost. The enemy was not easily turned back, as the trees show. The extreme windward side bears silent testimony to the danger threatened. The leaves in many places look as though a fire had been built nearby, but as you get in a few rows there is to be seen a marked difference in the appearance of the foliage, until as a distance of 100 feet or more is reached there is almost complete immunity.

One disheartening aspect of the fight was the apparent effect on the trees of the extreme dry condition of the air. The relative humidity was for several days about 16% and the trees looked so withered that the fired groves looked as bad as the unfired. This gave rise to the claim that there was no use in trying to fight. However, on the 9th, there came a light rain followed by showers for two days that immediately brought back the fresh green of the fired groves, while the unfired stayed curled.



Hamilton Orchard Heater.

The victory was won! We have now had time to look about us and realize that the labor begun five years ago and culminating in the splendid organization of this year was bearing fruit many hundred fold, and that with the experience of the past there has been built up a confidence in the power of fire to combat frost, even at the risk of having to "warm up all outside." Improvements in methods will come as a matter of course, even as there is to be seen a vast difference between the crude oil pots of the past and the improved heaters of the present. Some improvements are even now being offered to offset the obnoxious soot factor, and the orchard heating of the future will be free from many of the most trying elements of the past work. The greatest lesson of all to be drawn from the Pomona fight is the value of co-operation and consolidation. Nothing else could have saved the day. If each had gone his own way, with no effort to bring his neighbor into the fight, so that a mighty unit could be pitted against the common enemy, it would have been a dismal failure, as many a derelict of orchard heating stands today a mute witness to the futility of individual effort.

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WILLSON'S WONDER WALNUT

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WALNUT

WILLSON'S WONDER

THE GREATEST WALNUT IN EXISTENCE.

A few hundred trees yet unsold. Good time yet for planting. Get in before too late.

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A few hundred left of 3 to 4 ft., 2 to 3 ft. and 1 to 2 ft., at attractive prices.

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Catalogue and prices on application.

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Rubidoux Nurseries

P. M. RASMUSSEN, Manager.

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RIVERSIDE, CAL.

The Aims of the Farmers' Union.

[By Our Associate Editor.]

Of all the co-operative organizations in California the Farmers' Union has the greatest conception of what can be done for the farmer, what co-operation to the fullest extent might bring. However much a person might disagree with the practicability of this conception or the methods of bringing its consumation to pass, the greatness of that conception deserves his careful consideration and the actual achievements are certainly worthy of commendation.

The Farmers' Union is composed of two separate and distinct organizations, each formed for a different line of activity, each connected to some extent with the other, each of mutual assistance to the other. The first organization is the Farmers' Educational and Co-operative Union of America, designed to be nation wide in extent, to have as its fundamental purpose the social betterment of the farm. There are many local organizations of this, most of which in California are in the Santa Clara Valley. These meet twice a month or so in a social gathering, to have a good time, to hear some instructive talk, to learn the latest things in agricultural science, to improve neighborhood conditions. To a certain extent it follows the ideas of the Granges.

It has also another ultimate object, the establishment of marketing agencies, which the second class of organization has as its main business. These organizations are parts of, or affiliated with, the California Farmers' Union, Incorporated. Not all locals of the Educational and Co-operative Union have marketing locals connected with them, but it is the ultimate idea that they shall. The institution was started in Texas and is very strong there and all over the South. In California the Farmers' Union does much business, although there are but four or five locals in operation.

START.—The start of the Farmers' Union was in the thing that starts all co-operative enterprises, the tyranny of the middleman. Cotton in Texas in 1902 was selling at a ruinous price and several growers got together to send some cotton to England with one of their number to sell it direct to the manufacturer. The manufacturers were delighted to get it at a figure that put joy into the hearts of the growers and they then and there got together to sell their cotton themselves. The organization was so successful that it swept over the Southern States, is in a way the greatest thing in the cotton industry, for prices have been decent ever since it got a good start, and it has also obtained great strength in the tobacco States also. Thus far it is barely getting a foothold in the Northern States, though a few are well organized, includ-

ing Washington, on the Coast and several States in the Middle West.

CALIFORNIA.—In California it is but a few years old. The social organization is strong only in Santa Clara county and in one or two localities in other places, including Clovis, Fresno county, and Modesto, Stanislaus county. The selling department is in operation only in three locals in Santa Clara county, including Morgan Hill, Campbell and Saratoga, and in Fresno county. The selling is limited mostly to prunes and raisins, with some other dried fruits.

The packing of the fruit is done under one brand and all selling is done by a central agency, the California Farmers' Union, Inc., H. G. Johnson, sales manager. This is located at Fresno, but will soon be moved to San Francisco.

The success of the organization is indicated in the prices for the 1911 prune crop, the 1912 crop not being all sold yet, naturally. The final settlement averaged up 5 1/4 cents as the basis price, with \$60 per ton for 100-120's and \$40 per ton for 120's up. The premiums were 3/4 cent for 40-50's, 1 1/4 cents for 30-40's and 3 cents for 20-30's. It is stated that was about \$5 a ton more than independent growers received as an average. Besides it acted as a stabilizing influence on the market as opposed as the unstabilizing effect of the ordinary system.

The marketing locals are all flourishing. That at Morgan Hill is said to be the most prosperous in the country. It only started in 1911, although a few growers had been working together through the State Union in an informal way for two years before. This year there are 140 growers using the house, representing 1,600 acres, 2,000 tons, well over the capacity of the house. They are able to handle the business only by having the growers deliver the prunes as room is made for them. Walter S. Brcton, is the manager there. The Campbell house is prospering similarly. The Saratoga plant is a one man concern, though used by a Union. The Clovis Union was started with a capital of \$50 in April, 1909, and now has a plant worth \$40,000. The increase is from investment, not earnings.

ORGANIZATION.—The conception of the organization is wonderful, though the systems of organization in some unions is much inferior to the system of organization used in the California Fruit Growers' Exchange, the Walnut, Almond and Cured Fruit Exchanges and other purely co-operative organizations. There is no fundamental weakness, however, and with little friction or difficulty the methods could be changed to the admirable system of these concerns.

The ultimate conception is a general organization of farmers from Maine to California, from Puget Sound to Key West, all in local organizations that will forward education and social and physical advantages for the communities. These would join for State betterment and the State organizations for national welfare. The farmer's voice could be heard in public matters and he would exert a deserved influence.

Not stopping at a single crop or the products of a single district or State, the business organization would market all the produce of the farm, cut out unnecessary friction and waste in distribution, prevent speculation, give the producer and the customer what was right.

Possibly this marketing would not be done by only one organization. The method now is simply to have the members of the social branch organize marketing locals when they were ready and let these sell through the State Union. That is the way it is done in California.

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It doesn't pay to wait until the last minute. Let us know what you are figuring on planting this year and we will be glad to advise with you free of charge. It will cost you nothing to get our suggestions and may save you lots of time and money.

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CITRUS AND DECIDUOUS FRUIT TREES

GRAPE VINES, BERRIES, NUTS
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DECORATIVE SHRUBS, EUCALYPTUS

SHADE TREES, CYPRESS, ETC.

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Stock heeled in on our packing grounds ready for immediate shipment.

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Dollar Strawberry Plants, \$5.00 per M.
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Universal Orchard Spray

Send 25 cents for our 1913 Spraying Calendar. Very valuable and interesting. Address INSECTICIDE DEPARTMENT PAUL R. JONES, Entomologist BALFOUR, GUTHRIE & CO. 350 California Street San Francisco

FRUIT TREE BARGAINS

Nonpareil, Ne Plus Ultra, I.X.L., Drakes Seedlings, Texas Prolific, Hungarian, Silvers, Imperial, Goldendrop, Bartletts, Cherries, Walnuts, and Figs.

Special prices on application.

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HAVE A GOOD
LINE OF

Navels and Valencia LATE ORANGES

ABSOLUTELY UNTOUCHED
BY FROST

Our stock is grown under ideal
soil and climatic conditions, and is
straight, clean and thrifty.

Write us for special
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In addition to growing all the best
varieties of oranges, lemons and
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DECIDUOUS FRUIT TREES

in nearly all the most wanted vari-
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We have a fine stock of these pop-
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a fine assortment of ornamental
trees, shrubs, vines, plants, palms,
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Washington Street
and walk 2 blocks
east, or take Watts
local direct to
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IMPERIAL PRUNES on Myro.
BURBANK'S "STANDARD" PRUNE.
BARTLETT PEARS, APPLES, CHER-
RIES, ALMONDS, PEACHES, BLEN-
HEIM and ROYAL APRICOTS.
FRANQUETTE, MAYETTE AND
PLACENTIA GRAFTED WALNUTS.
10,000 Loganberry Tips.

A complete line of other Fruit Trees.
Ornamentals, Small Fruit Plants, Palms,
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EUCALYPTUS

We have our usual stock of high-grade
trees, to which we invite correspondence
of intending planters.

W. A. T. STRATTON
Petaluma, Cal.

FINANCE.—The method of financing
some local and State unions is where a
theoretical weakness comes as compared
with many purely co-operative associa-
tions in California. It takes money to
start a packing house and organization
and the money used is subscribed and
permitted to 'earn interest. The persons
that put up the money also have the di-
rection of affairs. The weakness that
often develops under such methods in a
way is provided against by the whole
system of organization and by certain
regulations.

A grower can subscribe what he wants
and get returns in proportion to his in-
vestment. However, it is one member,
one vote, which makes for democracy and
the interests of the industry rather than
the stockholder. Also all subscribers
have to be members of the social branch,
the Educational and Co-operative local,
and they would be in hot water in the
neighborhood if they tried to exploit the
industry.

The central Union is financed similarly,
by subscriptions from members of the
Union through the State. It is not
financed by the affiliating locals nor man-
aged by their representatives. The busi-
ness dealings are through contracts.
However, the financing is not to earn
dividends, but to provide a means for co-
operative marketing.

It might be added that the Morgan
Hill Farmers' Union is organized on a
purely co-operative basis, like the ma-
jority of the co-operative associations in
California, which is the ideal basis, and
every dollar received over and above the
actual cost and expense of packing goes
to the fruitman on a pro rata basis. The
fact that this is one of the biggest, best
and most influential locals in the Farm-
ers' Union promises good things for the
organization of all other locals, not only
through the State, but through the
United States.

PATRONAGE.—Unlike the usual co-opera-
tive concern, the patronage comes from
members and non-members alike and it is
optional with every grower whether he
sell through the Union or to an independ-
ent packer. After the goods are sold,
however, they are sold on a co-operative
basis on the same terms to both members
and non-members. Certain definite
charges are made for packing, shipping,
etc., which charges pay for the necessary
investment and other expenses, and the
receipts are divided among the growers in
proportion to the amount of fruit and the
quality thereof, also according to the
separate pool.

For the latter, there are several pools.
For example, the fruit contracted and de-
livered up to a certain date early in the
season is in one pool. If the price falls,
the grower who brings in his fruit later
is not permitted to get the benefit of
prices he was not responsible for, but if
the price goes up, he gets the benefit of
them.

As a rule about half the market price
is given for the prunes on delivery and
the remainder when returns are received
from the buyer. This gives the grower
sufficient to meet all expenses at the time
and only distributes his year's receipts
through the season instead of giving them
all at once. There is no use in going into
detail on this and other propositions.
Suffice it to say that the financing of all
crop marketing is fundamentally the
same, whether it be done by local organi-
zation, general organization or commer-
cial packer. There are also fundamental
advantages of co-operation that exist in
all concerns. The essentials are a rea-
sonable system and good men running it.
The fundamental faults of ordinary
marketing will always exist, the funda-
mental advantages of co-operation will
also always exist—the absence of the
speculative feature to demoralize the

market, honest dealing to the grower, an
honest pack for the trade, an encourage-
ment of growing better fruit, a tendency
for bigger consumption and better trade
every year.

And finally, the business locals not only
do marketing, but they are buying for
their members, not only what is needed
for packing house business, but for pri-
vate use. Like the Ukiah Union spoken
of a few weeks ago in these columns, the
Farmers' Unions are buying spraying
material, hay milled feeds and other
goods for members. This is in a way
merely to oblige them, but is so popular
that the business is increasing by leaps
and bounds and as it provides a great
help to the community it is there to stay
and to become a basic part of the Union
work.

At the Morgan Hill Union during the
past year \$10,000 worth of this kind of
business was done, and it likewise
is interesting to note that just this sum,
\$10,000, was also paid out in wages, etc.,
for packing house operations during the
year.

Whatever view is taken of this great
institution, it is based on a great concep-
tion, and a not impractical one. By social
gatherings and local organizations life
can be made better and more enjoyable,
the farmer can come to his own. By co-
operation in marketing the disgraceful
conditions often existing in the handling
of farm produce can be overcome. By
co-operative buying a third great step of
fundamental importance in the farmer's
life can be taken. It seems possible that
on the thoroughly co-operative basis of
most of our organizations some improve-
ment might be made, but the present sys-
tem of financing practiced by some of the
locals has developed no noticeable disad-
vantages, the work of the Union has done
lots of good and whenever the democracy
of membership sees fit to change it can
do so, whenever the need of change de-
velops it will come.

FROZEN ORANGES AGAIN.

(Continued From Page 327.)

The next paragraph in the same article
is also of interest:

"In frozen oranges white specks, fre-
quently as large as half a millimeter in
diameter, form in the membranes be-
tween the segments and in the mem-
branes of the pulp vesicles. They are so
invariably present in frozen oranges, even
where the fruit is but slightly injured,
that they may be considered as evidence
of the effect of freezing. These specks
are apparently masses of hesperidin
crystals, separated from the cell sap by
chemical changes caused by freezing.
These characteristic specks are also
found in frozen lemons and pomeloes, and
probably in all citrus fruits."

San Francisco. G. P. RIXFORD.

[Mr. Rixford wrote promptly, and the
delay in the appearance of his communi-
cation is our fault. Dr. Webber has been
widely circulating the results of his
Florida experience, and we have pre-
viously outlined them, but they may have

TREES

AT REDUCED PRICES.

French Walnuts grafted on Cal.
black. Cherries, Apples, Peaches,
Palms, Orange, Lemon, Acacia, Roses,
Berry Plants, Giant Winter Rhubarb,
Etc.

Established 1864.

HANNAY NURSERY CO.

San Jose, Cal.

missed the attention of some readers.—
EDITOR.]

Germain Germain Germain Germain

ORANGE SEED Sour—Sweet

The killing frosts have
made a clear field for
growers of citrus nursery
stock. The great demand
for seeds suggests that
reservations be made at
the earliest possible date.

Prices are bound to
advance with the season.

Our Sour Seed is Flori-
da and Cuba grown, and
is most carefully selected
by our own men. The
Sweet is California Stock
from the very best dis-
tricts.

Place your order imme-
diately with the reliable
house, and you will get
seed of the very highest
germination.



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Germain SEED & PLANT CO.
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LOS ANGELES, CALIFORNIA

Germain Germain Germain Germain

French Prunes

on peach root

FRANQUETTE WALNUTS

on Cal. Black root.

ALMONDS, ASSORTED

on bitter almond root.

SHIPPING PEARS

on pear root.

Write for Discounts

also general assortment.

Leonard Coates Nursery Company

MORGANHILL, CAL.

FRUIT AND ORNAMENTAL TREES,
VINES, PLANTS, SHRUBS, ROSES,
PALMS, EUCALYPTUS, ETC., AT

Eastern Prices

All California grown and first
class.

10 Sample special offer. Potted
Acacias, Eucalyptus, Peppers,
for Cypress, Ferns, Smilax and
\$1.00 Bulbs.

Write for special offers and price
list. We have the best Eucalyptus
in the state and issue a special
booklet, sent free.

STANISLAUS NURSERY

LLYOD R. TAYLOR, Prop.,
Modesto, Cal.

California Cherry Worm.

Of much local interest, but not of wide commercial importance because its occurrence is limited even in California, is the Cherry Fruit Sawfly, which was found by W. T. Clarke of the University of California several years ago in the orchards of the Suisun valley. Prof. Clarke identified the insect as new and it has since been fitted out with a name. —Hopllocampa Cookei.

We shall take from a special publication of the Division of the Entomology of the U. S. Department of Agriculture some notes of the observations on this insect by S. W. Foster who is known by many of our readers as formerly engaged in the thrip work in this State.

The insect passes the winter in the ground and emerges as a fly as the cherries are preparing to bloom, the female flies laying their eggs always on blossoms just about ready to spread the petals. The greater number of eggs are deposited in the sepals of the flower, although some are deposited in the upper portion of the calyx cup, but only in rare cases are any eggs deposited below the middle of the calyx cup. The time of hatching of worms from the eggs coincides very closely with the falling of the petals from the blossoms of the variety attacked. Usually the eggs are deposited at or just prior to the opening of the petals and hatch with the falling of the petals.

How the Worm Works.—Upon hatching, the young larva may feed for a short time in the tissue immediately surrounding the egg cavity, or on the inner surface of the calyx cup, but it soon finds its way to the bottom of the calyx cup and eats directly into the newly formed cherry. The larva at this time almost always enters the fruit through the base immediately adjoining or very near the stem. Going directly to the center of the cherry, the larva eats away the small kernel. The cherry thus injured soon withers. In two to four days after entrance the larva makes its first molt and leaves this cherry in search of other and fresher food. When attacking the second cherry the larva may enter the fruit through almost any place on the surface, but invariably goes directly to the seed, and if this has not hardened, eats out the kernel, as was done with the first fruit, seeming to prefer this to the meat of the cherry. The second cherry, being larger when attacked, usually withstands the effects of feeding longer and the larva may remain inside for some six to ten days or even longer. The growth of the cherry is checked and it frequently hangs

in the tree retaining a rather pale green color for some days after growth ceases and the fruit has shriveled. When the kernel in this second cherry has been destroyed, the larva usually goes to a third cherry and if the pit has not hardened eats it as before. However, when the pits become too hard the larva feeds on the meat of the cherry near the pit until it attains full growth.

GOING TO THE GROUND.—Each larva usually destroys three cherries, although some go to the fourth, while a very few complete their growth in the second cherry. The time required for the larvae to attain their full growth averages from 22 to 26 days.

When full grown the larva is about five-sixteenths of an inch in length, and leaves the fruit and works its way into the ground, where it constructs a small parchment-like cocoon. The cocoon will be found from 3 to 7 inches below the surface, the depth varying somewhat with the texture of the soil. It is elliptical or oval in shape and from one-fourth to three-eighths of an inch long. Inside the cocoon is smooth, dark brown in color, of a papery texture, and somewhat brittle, especially in dry soil, so that it is easily broken. The outer surface of the cocoon is covered with fine particles of soil, giving it the appearance of a small clod of dirt.

The larva remains as such in the cocoon until the following winter. Some time after the winter rains begin, it transforms to pupa and emerges the following March as adult. There is only one brood each year.

NATURAL ENEMIES.—It is possible that this species is rather heavily parasitized at times. The insect has been known in the Suisun valley since 1905, but caused comparatively little injury from that time until the serious outbreak of 1909. As no spraying had been done in the infested orchards that would be of any value as a control to this particular species it would seem that the parasites, altogether with more thorough cultivation, have served to keep it fairly well in check. The insect was less numerous in 1910 than in 1909, and the same was true of the years 1911 and 1912.

EXPERIMENTS IN CONTROL.—Experiments in spraying with arsenate of lead were made in 1910, but in this instance the poison did not prove to be altogether effective. Some larvae were killed, but not enough to warrant the recommendation of this as a satisfactory treatment in case of a serious outbreak of the insect. Further work along this line is desirable. Mr. O'Gara, in a letter, reports satisfactory results from the use of arsenate of lead in the Rogue River Valley of Oregon.

Many adults were killed in the early mornings while spraying with 3 per cent distillate-oil emulsion to which sulphate of nicotine had been added at the rate of 1 part to 2,000 parts of water. This method would most likely be a very effective means of control if all the spraying could be done in the morning. At this time the adults are sluggish and can be easily wet with the spray.

Perhaps a more likely means of holding this sawfly in check is by careful cultivation. The most serious hindrance to this plan of treatment in cherry orchards is that the roots of the cherry tree close to the trunk are near the surface, and some larvae go below the top of these roots. However, it is highly advisable to cultivate the land thoroughly two or three times just prior to the first picking of the Black Tartarian cherries, as most of the larvae are leaving the trees at this time and numbers of them would probably be killed.

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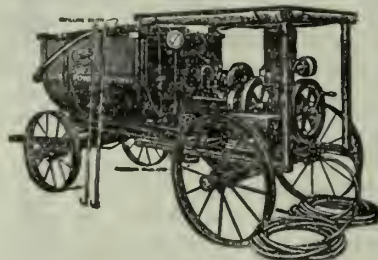
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Drawer 6. AGENTS WANTED.

Agricultural Lands of the Forests.

[Written for the PACIFIC RURAL PRESS.]

It may not be generally known, although it is worth knowing, that some very interesting and important agricultural work has been going on in the National Forests of California for the last few months that will be a great thing for the State, that is, the opening up of all the agricultural lands therein to easy settlement. The agricultural lands in the forests have been open to settlement since 1906, but in a rather cumbersome and roundabout way. The new way is a removal of lots of red tape after the would-be settler has found what he wants and it also makes it very easy to find what he wants, provided it is to be found.

NATURE OF LAND.—The National Forests naturally contain very little agricultural land, if they did, they would have long ago been private property. They are in rough, mountainous country, the small amount of good land has been isolated and out of the way of the homesteader.

Yet through the mountains there has been and is yet a considerable amount of tillable soil in the aggregate. It lays along the stream beds mainly, small areas surrounded by country that is on edge or for other reasons worthless for farming.

Under the old system a would-be settler was given the right to prospect around until he found a piece of public land in the Forests that suited his fancy, after which he could make application for homestead. The Forest Service then would send somebody to investigate the land and if it was found to be good agricultural land and if it was to be used as such and not merely held for the timber thereon, it was given on the same terms as other public land outside the Forests.

Last fall a general order was issued for an examination of all the Forests for good agricultural land so that delay to homesteaders and the expense of numerous individual examinations of lands could be saved.

Last December this work started in California, and will be continued until every bit of good land in the Forests is mapped, the would-be homesteader can find at once what is open to settlement, and then homestead what the law allows without unnecessary delay. This mapping is already well advanced in the Santa Barbara and Angeles Forests and will be begun elsewhere soon. It will be five years or more before the work is completed, although settlers can homestead unmapped land in the old terms in the meantime.

RULES OF LOCATION.—There are in the Forest Reserves in California about 27,000,000 acres of land, of which about 7,000,000 acres are in private hands. Of the remaining 20,000,000 acres, only about 1,000,000 acres will probably be worth anything for farming.

Three considerations govern in deciding what this land shall be. The first is climate. There is lots of fine soil far up in the mountains. The trouble with this is, however, that killing frosts may occur every month of the year, which would effectually prevent every kind of agriculture but pasturing. This pasturing is permitted, anyway, so nothing would be gained by permitting homesteaders on it. Therefore, such land is kept outside of the homestead area entirely.

This unfavorable climatic zone includes about half of the forest area. It contains, however, the best of the timber and fine pasture, leased every year according to regulations.

Below this zone, where the climate would permit successful farming there

are other restrictions. One of these is soil and fitness for agriculture. Any land so rough and infertile as to be useless for farming is not open to settlement. Also where the soil is fair, but the slope is so great that reforestation would mean the destruction of the soil, this is withheld from settlement.

And where land is needed for reservoir or power sites, for the protection of the watershed, or for some other special reason, it is withheld.

Then there is a third classification, that of agricultural lands temporarily withheld from settlement. These are those with an excellent stand of timber, so that the homesteader would be tempted to hold the timber on a speculation rather than developing his property. According to the system to be followed, the timber will be sold from this as soon as can be with advantage, and the land then opened to homestead.

Altogether from these forests there will ultimately be added to the agricultural area of the State approximately 1,000,000 acres to help feed the nation and to provide for numerous families.

The average area of the farms granted in the Forest Reserves of California since 1906 is 95 acres. During that time there were 4,500 applications made, of which 1,800 were listed.

FUTURE DEVELOPMENT.—As far as anyone can judge, stock raising will be the principal kind of farming practiced. There are several reasons for this belief. One is that in the rather severe climate that will exist in the mountains at a good elevation as compared with the climate farther down, fruits and the less hardy crops will not thrive, and hay and the various roughages will be most adapted to the situation.

In the second place transportation will be an essential point. Nearly all of the arable land in the forests is in rough country, far from centers of population, and crops difficult of transportation would be unprofitable. Stock can transport themselves, and are as well as one of the most valuable products by weight that can be raised. Stock is also becoming continually more valuable and more profitable to raise, so everything will tend toward stock raising as the industry, as it is in all the mountain districts of the State.

Further, the Forest regulations will encourage this. The National Forests provide some of the most extensive and best range in America. It is the rule to give land owners in the forests precedence over all others in grazing privileges, and the homesteader during the summer will be able to feed his cattle on the public lands surrounding his ranch, while he raises the hay which will keep them during the winter on the richer bottom lands that constitute his holdings. In this way he will be able to keep several times the number of cattle than could be kept solely on his farm. This will also make a better use of the public land than if the only stock was that raised at a long distance and driven to the mountains when the grazing season permitted.

Thus the time is approaching when a person can obtain good public land, though isolated, with greater convenience than ever before. That land will total about 1,000,000 acres. It will be cut up into rather small holdings, it will support many families, it will mean a better use than now of the public forests and it will be a source of meat supply at a time when meat is needed.

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The January Freeze.

[By A. J. Cook, State Horticultural Commissioner.]

When any calamity touches the public pocketbook or that of any class of our people to the tune of millions of dollars, it at once becomes a matter of great interest and concern to all of us. This leads me to comment on the condition of the orchards and other plantings in the south land as they appeared to me on a recent tour through seven southern counties of the State.

The loss to the lemon growers, both in trees and fruit, is large; it is less to those producing oranges, still less in the pomelo orchards, while tangerines have suffered least of all. Young trees of all

kinds have suffered most.

I was also interested to note the effects on plants, shrubs and trees other than citrus. In many places the pepper trees escaped all injury, while under more trying conditions the entire foliage of these trees was blighted. Most vines, like Tacoma, Bougainvillea, Moonvine, Solanum, are all dead. Cocos plumosus, of course, is cut to the ground, while the beautiful C. australis was unharmed. Phoenix reclinata was much injured. The fan palms were harmed far more than were either Phoenix canariensis or C. australis, but our common species of Chamaerops were mostly uninjured. Acacias are usually all right, though I noted some show of injury in a few trees. Black acacia, Acacia melanoxylon and A. baileyana were generally free from injury. Of course the rubber tree and the flame tree were robbed of all their foliage.

At the University Station at Whittier I was shown a way to distinguish between frozen and unfrozen fruits. If frozen the fruit increases in size and the rind becomes much thickened; if the fruit is unfrozen the exact opposite occurs. I had occasion to test this in several places and on a large scale, and found it correct in every instance. The varying specific gravity depends upon this varying size rather than absolute weight.

FIRING.—Firing has proved a signal success. In one large lemon grove where a severe loss years ago led to careful preparation, and where everything was in readiness, very little loss was experienced; indeed, the frost will prove of value, as the cost of firing eighteen or twenty nights will be far more than met by the enhanced price of the fruit. The manager of the grove, who had a like happy experience a year ago, then said the invaluable lesson of the past teaches us that we must never count on having frostless territory, yet this gentleman did not take his own medicine for some high-up orchard and nursery stock thought to be above the danger line was severely hit. The orchards which were severely frozen might have been saved and will be in future. We must remember we have none or very few frostless areas.

A SMOKELESS FIRE-POT.—We saw a "fire-pot" (oil-pot) while in the south that can be burned in a house with no serious offense. Of course, it gives off much heat. No smoke, or very little, is apparent. I visited an orchard where this was used during the freeze, less than one pot to the tree. Appearance, touch, and the test explained above, showed that the fruit was not frozen. On the opposite side of the road all the fruit was frozen, as it was on the other three sides. This was denoted by the give of the peel as we grasped the fruit, by the thick rind, the large fruit and the empty juice cells. Where firing (hope we may use firing, not smudging, to designate this important orchard practice) had been practiced for the most part, as I would grasp the fruit my hands would become decidedly smutted. In this orchard there was no sign of smut on my hands and, of course, none on the fruit.

I have wondered if the smudge was not an important factor in protecting the fruit. This example would seem to show that it is heat, not smoke, that is needed.

The oil used in this pot was the cheapest of crude oil, so the expense was much lessened. Of course, I could not judge of durability or the danger of coating the inside of the pot to its injury. The pot is made for 60 cents.

CENTRAL HEATING PLANT.—It has been suggested that a central heating plant might be more economical. I have now

been in California twenty years; in that time we have had six frost-damaging winters. This is less than one winter in three. Would not this fact utterly down

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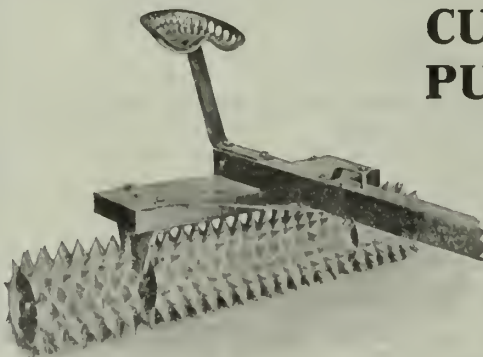
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Glendora, Cal.

the argument for an expensive central heating plant? The indication now seems to be that we must seek a smokeless oil pot that will burn uninjured the cheapest oil.

WHAT TO DO.—Dr. Webber is reported to have stated that no pruning should be done until we are sure of the extent of the damage. I have believed this the wise course on large trees. At the great lemon ranch before referred to, on young trees three or four years old examination showed that under the bark the cambium layer often for the whole circumference was brown and dead. These trees are evidently doomed down to the ground. In some cases there were a few green leaves and a narrow strip of the cambium was sound. In this case is not the owner wise in cutting, as he is doing, the tree wholly off down to the ground? With the great root system a new tree would rise like Jonah's gourd, which can be budded and will soon make a fine tree; so little time will be lost. A crop of beans will utilize the land and there will be no tree top in the way of cultivation. This course seems wise to me. I wish Dr. Webber had seen these trees. I would value his view of the course pursued. I once set out three citrus trees in February. A year from the next summer a careless cultivator broke one of the trees down. A growth from the great root system pushed rapidly upward and today that tree is the best of the three. A few years since, my barn burned, a pear and a loquat tree were badly scorched so that less than half of the bark was left intact. I thought to save the trees and did so, but the lagging growth and vigor have made me regret my decision ever since.

THE CONCLUSION.—As some of the most damaged orchards were where no previous frosts had ever occurred and where Poinsettias and tomatoes have lived in the open for years, we must act on the assumption that there are not frostless areas in California. All growers must be prepared to fire and keep at least one oil pot to each tree. This pot must burn the cheapest oil and consume all the smoke with no damage to itself. If we can place an oil reservoir on high ground and pipe oil to parts of the orchard, much labor, time and expense will be saved, and we will be more likely to avoid costly delays, as the fires must anticipate the freezing. The escape north was due to less cold. Even at Sacramento the temperature reached only 27° Fahr.

SOUTH AUSTRALIA DOUBTS THE BARTLETT.

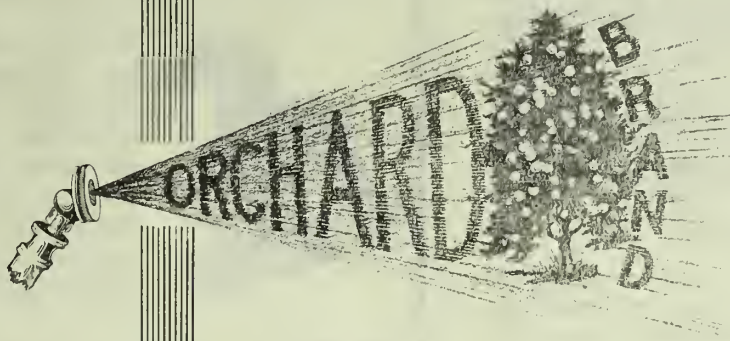
H. D. Howie recently read an interesting essay on pears in Murray Valley, South Australia, of which the part that comes closest to California affairs is what he says about the Williams pear which is English for our Bartlett:

"There has been a growing idea that the Williams occupies the same position in Australia that it does in California. But I would like to point out the difference that we have no large fresh fruit market nearer than England, and though Victorian growers have successfully exported Williams—and further intend this season to send two shipments of 10,000 cases each on the Somerset principle—I do not look with much hope to ever doing a large export trade of Williams from the Murray Valley. This pear has been very largely planted all over Victoria, South Australia and West Australia, and canners in South Australia have told me that there are more pears planted than will fill their requirements.

The option left the grower is to dry his Williams, and at present there is a certain demand for the dried article at a good figure. However, I do not think this trade is capable of very large expansion, and consequently we have turn-

Don't Experiment

The day of experimenting with orchard sprays is a thing of the past. Nowadays orchard spraying is a science. There is no hit or miss principle connected with it. The right kind of orchard spray has gone through the experimental stage—it is a **proved success**. If your trees are not as healthy as they should be we would like you to try



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ed our attention more to the safer export varieties."

Mr. Howie mentions these safer varieties as follows: Josephine, L'Inconnue, Glout Morceau and Douise Boune de Jersey.

The Sebastopol cannery of the Central California Canneries, will not be operated this season, owing to the lack of stone fruits, which have been largely replaced by the famous Gravenstein apples. A little farther up in Sonoma county, at Windsor, the farmers are endeavoring to have a cannery established to take care of the great amount of new fruit acreage being set out.

A cannery may also be established at Terra Bella, Tulare county, if the acreage to vegetables can be extended sufficiently.

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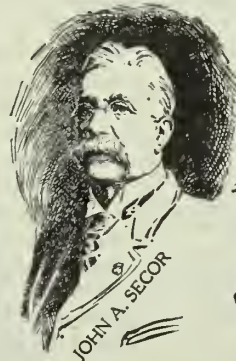


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Faults of Proposed Bills.

The bills which the State Dairy Association are fathering in the legislature have been fully discussed in these columns. Other bills from various sources are before the legislature, and will be passed or rejected in the second half of the term. The opposition to these independent bills is expressed by the State Dairy Association in the following letter. This communication is very important, and very interesting, though the RURAL PRESS does not necessarily endorse everything therein.

To the Editor: We beg to call your attention to several bills which are very objectionable to the dairy industry of the State. The following bills, if passed, would hurt the dairy industry, and should be defeated:

1. Senate Bill No. 152—Finn, to prevent the importation of diseased live stock into the State. The objection to it is that, so far as cattle are concerned, the only definite precaution it requires is to administer the tuberculin test; whereas our Assembly Bill No. 537, described in our letter above referred to, is a better and more effective and thorough measure for real protection, and includes everything this bill contains, and in addition requires a careful physical and clinical examination and certificate as to each individual animal.

2. Assembly Bill No. 576—Inman, is very bad and dangerous. It prohibits the sale, except for slaughter, of cattle affected with tuberculosis, and forbids their sale even for slaughter until after a permit is obtained from the State Veterinarian; and after slaughter the animal must be subjected to a post-mortem examination by the State Veterinarian. It also provides that any animal shall be considered as being affected with tuberculosis if the State Veterinarian, or any of his deputies considers or declares such an animal to be so affected, or if such an animal reacts to the tuberculin test.

This constitutes a wide open authorization to the State Veterinarian and all his deputies, without restriction or control from any source and without being accountable to anyone, to condemn as many animals as they choose in every herd on any evidence of disease they may choose to accept or on no evidence at all.

This method of dealing with bovine tuberculosis is diametrically opposed to the method agreed upon by the dairy and live stock interests of the State as embodied in the Guiberson and Cogswell bills explained in our former letter to you of February 11.

3. Assembly Bill No. 573—Inman, (Senate Bill No. 757—Finn), to protect domestic live stock from contagious diseases, etc., would not be objectionable if amended in one respect. Our dairy bill, Assembly Bill No. 535, described in our previous letter, provides a complete and practical system of dealing with bovine tuberculosis. This Inman bill requires the State Veterinarian to investigate and quarantine all animals suspected of having any infectious disease, and in that respect it conflicts disease. This bill should be amended by inserting the words "other than bovine tuberculosis" after page 2, and also after the word "disease" in the 28th line on page 2. This would not impair the value of the bill in other respects.

4. Assembly Bill No. 663—Richardson, (Senate Bill No. 566—Regan), to regulate the operation of steam boilers, is vicious and extremely objectionable to the dairy industry. It forbids any person to operate a steam boiler as large as four horsepower, or carrying over 10 lbs. pressure, except regularly licensed engineers who have been examined and granted a license

by a State Board of Examiners which the bill creates.

Nearly all large dairy farms, and all creameries, cheese factories and market dairies require boilers larger than four horsepower or which carry more than 10 lbs. steam pressure. Even though such boiler is fired but one hour per day the dairyman must hire a professional and high priced engineer. A similar freak bill was defeated at the last legislature.

5. Assembly Bill No. 232—McDonald, is a companion to the bill last described. It requires every boiler of 2 horsepower or over to be registered and inspected once a year by a new State Board of Inspectors which the bill creates, at a fee of \$5 per inspection. This is more of the same kind of tomfoolery. Both these bills appear designed merely to make jobs for someone.

6. Assembly Bill No. 241—Benedict, (Kehoe Bill No. 207 in Senate), to compel the observance of Sunday. This bill is objectionable to the dairymen and creamerymen only in one respect, but this is an important feature. It makes it a misdemeanor even to permit an employe to do any work on more than six days of the week. The bill does not require (for a wonder) the dairyman to let his cows go unfed and unmilked, and the creameries and market dairies to shut down on Sunday, but it does require that an entirely different crew of men shall be provided to do the work of this one day, or that some other system be worked out by which each employe shall have a full 24 hours rest each week. This might be possible by rotation in a large concern employing a large number of men, but it is ridiculously impracticable for the ordinary or small dairy or creamery employing only a few men.

7. Assembly Bill No. 493—Walsh, Assembly Bill No. 1493—Hayes, and Senate Bill No. 140—Regan and Lyon, are all similar in effect to the Benedict bill last above described, and require that every employe be given one full day's rest in seven.

8. Assembly Bill No. 31—Kingsley, to limit all labor to a maximum of eight hours per day or a maximum of 48 hours in any week. This bill is still more objectionable than the last two bills above described, and for the same reasons.

9. Assembly Bill No. 921—Roberts, amending the present law concerning trespassing of animals. The amendment consists in omitting from the end of Section 1 the following, "In all cases where such land is planted to growing crops, vines, fruit trees, or vegetables, and is at the time entirely enclosed by a substantial fence or other enclosure." In effect it repeals all the present fence laws of the State, and makes every dairyman or live stock man liable in damages as well as guilty of a misdemeanor if any animal while on the public highway should set foot on any other man's premises, although entirely unfenced and unprotected.

This law is extremely bad and dangerous. Under it no dairyman or live stock man could make any use of the roads or highways of the State, and could not safely move animals from one place to another, not even to market. There is neither sense nor necessity in this bill, and it would ruin the live stock and dairy business.

For the foregoing reasons we respectfully urge that you actively oppose the passage of each said bills.

CALIFORNIA STATE DAIRY ASSOCIATION.

[In regard to the State Association bill it seems probable that it will be amended so that only cities of 10,000 and more residents will have to appoint

municipal milk commissions. The Tulare Association called for this change, otherwise endorsing the Association bills unanimously.

The Association is having petitions cir-

culated opposing the bills named in the above letter. Probably such petitions will be found at the various creameries. Otherwise write to Mr. Carver, address Los Angeles.—EDITOR.]

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How to Find Tuberculosis.

(By Our Associate Editor.)

In all the talk of tuberculin testing, testing the milk and excreta for tubercle bacilli, and soon a person is likely to get a little confused as what the trouble is all about, and a little review of the primary points of the matter now and again is often advisable. That this is a good time for such a review is suggested by the receipt of the following letter from W. T. D., Fowler.

"Please inform me if a cow can be tested for tuberculosis through the milk or the blood, and if the test would be dependable. If so, where would it be done?"

First, to answer the questions—no test can be made of the milk or the blood to see if a cow has tuberculosis, or perhaps better say, a test of the milk or blood would be valueless with all but a very small proportion of tubercular cows.

Why.—This is so because the germs do not live in the blood as do some disease germs. They may be carried in the blood from the digestive organs to another part of the body, but the disease does not work in the blood, but in the tissue. The tissue becomes diseased in little bunches which continually increase in size by eating into surrounding healthy tissue. The blood remains practically free.

Again, although the agitation against tuberculosis in cattle is based almost entirely upon the danger of consuming milk with tuberculosis germs in it, and agitators seem to consider it necessary to kill every cow with a trace of the disease in order to be safe, yet it is quite unusual to find a cow with tuberculosis whose milk is at all different from a healthy cow, provided ordinary sanitary precautions that should be required in all dairies are used in milking. Therefore the overwhelming majority of cows that have tuberculosis show no signs of it in the milk.

In all but rare cases, cows whose milk is affected will have udders which on examination can be seen to be diseased. The milk of only about one herd in six among whom tubercular cows are to be found contains tubercle bacilli. If those cows with diseased udders or with a very general attack of the disease were removed, only in rare cases would the bacilli be found.

However, when the bacilli are in milk, they can be found by microscopical examination. Even this is not very accurate, and it is usually considered necessary to try to develop a case of the disease in guinea pigs by the milk before one can be certain.

Thus if a person wants to know if his cows have tuberculosis or not, an examination of milk or blood would be to all intents and purposes, without value. If he wanted to know whether or not the milk was free from bacilli, he could have the milk examined for them. Probably the right place to send a sample would be to the State Board of Health Laboratory, Berkeley, but it would be wise to write and arrange matters before sending any milk along.

DETECTION METHODS.—The standard way of discovering the amount of tuberculosis in one's herd is by the tuberculin test, which has to be done by a veterinarian or other person accustomed to it. The natural temperature of the cow for a given period is first recorded. A given amount of tuberculin is then injected into her veins, and if she has tuberculosis at all, a fever develops after a given length of time. Whether she has the fever or not is determined by taking her temperature again several times at periods corresponding with the times that her temperature was first taken.

The exact method of procedure is described in Bulletin 199 of the Agricultural Experiment Station, Berkeley, sent free on application. By following directions closely, a dairyman can do his own testing.

Outside of this and closely related ways, there is no method of telling when most cows have tuberculosis. There are various symptoms that show tuberculosis in certain forms and in advanced stages, but apparently healthy cows may have small traces of the disease that can be detected in no other way than by the tuberculin test.

Unfortunately for those who are supporters of the test, the fever develops upon every provocation, tubercular and otherwise, and any temporary indisposition of the animal is likely to bring it about that she is accused of having the disease. This has to be looked after very carefully in making the test. When properly done, however, it is claimed that only in rare cases do perfectly healthy cows react.

Practically, it seems evident that many cows "react" that really have no tuberculosis at all, and further, that cows very slightly affected could easily recover.

Although first designed as a curative agent, tuberculin has no curative effect, but rather slightly injurious effect on cows that have tuberculosis. It seems to do no injury whatever to perfectly healthy cows. The tuberculin itself is the material excreted by the germs of tuberculosis, heated to destroy any opportunity of infection.

OTHER METHODS.—There are other methods of testing for the disease. One is dropping a little tuberculin in the eye of an animal. This said to be an extremely delicate test, showing cases of the disease even when a cow is "plugged", that is, treated with tuberculin, so that she will not react to further tests. The reaction in the eye test is shown by the eye of affected animals sending out a watery substance. Although delicate it is said to be more unreliable than the usual method, sometimes showing the disease to exist when it really does not.

One investigator writing recently in Hoard's Dairyman, states that a herd of 33 cows showed six tubercular by this method against 2 by the standard method, on post mortem examination, five of the animals proving to have the disease and one giving no sign. Inasmuch as one of the quarrels that dairymen have with ordinary tuberculin testing is that it is so horribly accurate that it makes the cows react when the disease can not be discovered on post mortem examination, it seems queer that it would pass over three cows out of five where tuberculosis could be readily found on examination, but this is something for supporters of the test to explain.

The modern dairyman's method seems to be to remove all cows which give physical signs of ill health, give the others in good sanitary surroundings, feed and care and let it go at that. However, the recognized method of control advocated by most of the authorities by the dairy papers, even the best ones, is to use the tuberculin test and to remove reactors.

If a person wishes to have his cows tested he can do no better than to write to Dr. Chas. Keane, State Veterinarian, Sacramento, for assistance. This is the best as well as the least expensive way of doing it. It would also be well to get the bulletin spoken of above.

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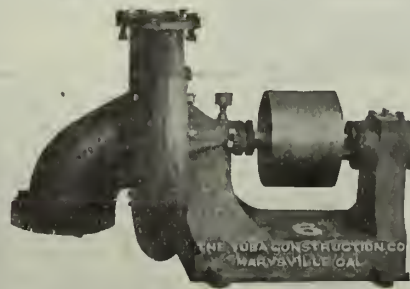
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Live Stock Notes and Comments.

[By Our Associate Editor.]

AMEND THE LIVESTOCK BILL.—Hardly a measure before the legislature deserves such hearty support as that appropriating the money for awards to exhibitors of livestock owned in California at the Panama Pacific International Exposition in 1915. This has been spoken of before. The Exposition directors are putting up money for general awards, the breeds associations are very liberal in appropriating money for the animals winning in their breeds, the States are making liberal appropriations for their breeders and the bill before the legislature would do the right things for California breeders. Still, there are always chances for amendment to advantage and two such amendments might well be made.

One thing is that the method of awarding the money will favor the rich breeder, the one who can go anywhere in the world and pay the price for the best show animal that is to be obtained. Better, if California is to make the most of its possibilities, to emphasize the actual achievements of California breeders. Let half of the money go under any events to owners of animals bred in California, let the other half go to the prize animal wherever it came from. That would encourage both good breeding in California and the buying of the best of animals.

Another funny thing about the present measure is that the distribution of the money is to be made under the direction of the State Board of Agriculture. That would be all right were it not for the fact that there is a State Commission having the expenditure of all the other State funds for the Exposition, on which are some of the most expert stockmen in California. It could go through no better hands. Let California bred stock have the inside track and let the State Commis-

sion spend the money, and everybody boost.

QUARANTINE STATION NEEDED.—The California Jersey Breeders Association and the directors of the Livestock Breeders Association have memorialized the Federal Government to have a Livestock Quarantine Station established in California as soon as possible. Every support that can be given this proposition should be given. By the time the Panama Canal is opened every old world exporter ought to know that there would be no friction in shipping livestock direct to the Pacific Coast, every importer who was going to get pure bred livestock into California would get it here direct instead of going to the delay and expense of taking it across the continent, and stock shipped here could come in with much greater convenience with a good quarantine station than with none. For the Panama Pacific Exposition this is essential.

Then for export it would be required. California is only starting on the pure bred business as a supply for the whole coast of Latin America and for the Far East and the trade that has been built up thus far by our breeders is but a minor fraction of what will be done later on. The Government must give every help to this and the more demand expressed, the sooner it will come.

FOREST SERVICE.—The way the Government has administered the grazing privileges of the National Forests is a matter of congratulation. The Federal Government, all governments local and national, are fine targets for complaint when anyone has a grouch and a bouquet occasionally should not be amiss. The Southern Sierra Cattlemen's Association, for instance, recently passed a resolution saying that "The administration of grazing on the National Forests has been carried on by the Federal Government in a manner eminently satisfactory to cattlemen, large and small," that "No advantage could come from a transfer of the National Forests from the jurisdiction of the Federal Government to that of the States in which they are located," and that the Association "Express their disapproval of any movement looking toward such a transfer." The general public has long admired the Forest Service and it is pleasant to know that the citizens having most dealings with the Service share this opinion. These Forests are an important source of beef and mutton supply.

FARM STOCK PROFITABLE.—It is not only on the range that stock is good, the small farmer finds it profitable also. In Germany not long ago a thorough examination of the finances of farming was made by the government. When the summing up was made it was found that the average excellence, the average profit, of the farms in which livestock was kept was a little greater than the profit and worth of the farms where none was kept. That is after the comparison was made as fairly as could be. A person can decide for himself whether this is because the farmer with livestock is more intelligent and progressive than the farmer without, whether the livestock themselves made the difference, whether the manure and the retained fertility was not responsible, or what was the reason. Anyway it is a good hint.

MORE PIGS.—This is not an exhortation to get more hogs. It might be a suggestion to see that more are kept, though. The corn belt is the great hog district of the country, yet careful investigation shows that in 1911 but 3.75 pigs per litter for all sows farrowing live pigs was raised during that year. There is a big talk of how many pigs a sow of some breed will farrow, but this shows another proposi-

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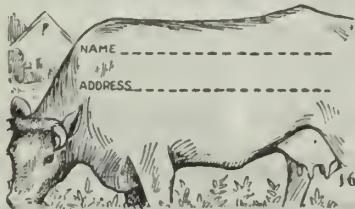
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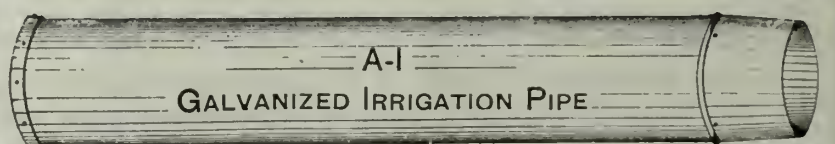
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tion altogether, the basic point is the number that can be raised. It is safe to say that California is no better, probably worse than the corn belt in this particular. Corn is the greatest food there is and straight alfalfa with some skim milk is neither conducive to large litters, strong pigs, or good pigs. It would be well worth more care, better feeding, if litters of seven would be the rule and five would be raised, or nine in a litter and six raised, in place of the 3½ per cent that the average man will get.

Poor Sows.—And when a person stops to think there seems to be less excuse for keeping poor sows and boars than poor stock of any other kind. It is a long time before the daughter of a brood mare steps into her place, a milch cow is as likely to have a bull calf as a heifer and not every heifer is worth raising and even then it is two years or so before the second generation comes along. A brood sow will give several prospective brood sows to a litter and they can be bred themselves in a comparatively short time. The per cent of reproduction, the frequency of reproduction, the difference that good breeding of boar or sow will make, the comparatively small cost of good gilts or good boars all give little excuse for the number of poor sows and scrub pigs. It is not necessary to keep

pure bred animals, but pure blood is a good thing to breed to, even if crossbred pigs are frequently the most vigorous and the most profitable to raise.

* * *

We are talking a lot about the way to inspect dairies. Would it not be a good idea if a rule were passed that before city inspectors were sent out after dairymen the cities had to be made as sanitary as the city governments are trying to make the dairies?

The safety of live stock in the mountain counties was furthered during January by the slaughter of 33 mountain lions—at least that was the number of bounties paid by the State Fish and Game Commission. Practically all of the bounties were paid in mountain counties and only a half a dozen persons got more than one bounty apiece.

E. W. Hotchkiss, of Los Angeles, has taken the position of buttermaker at the Oakdale creamery. Hotchkiss is a graduate of Cornell University. The creamery will be ready for operation in a few days.

Two changes of ownership of fine stallions occurred recently in Livermore. The Livermore Belgian Horse Co. auctioned

off the stallion Felix d'Herlaimont, Wm. Watson, a member of the company, making the purchase. T. Basso has purchased from J. R. Andrus, of Wrights,

Santa Cruz county, the Percheron lion Fanfarm. This horse is three years old, stands 17 hands high, and weighs 1750 pounds.

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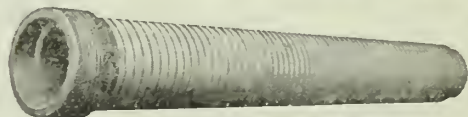
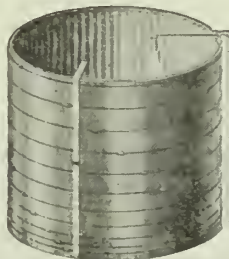
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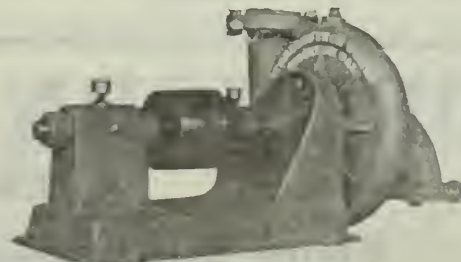
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SHIRE HORSES AND 'FEATHER'

A letter which C. W. Tindall sent to the English agricultural papers on the type of Shire horse to cultivate has given rise to considerable discussion. The object of the letter was to awaken breeders to the fact that if they are to create a market for the breed abroad it will be necessary to modify the type that at present is in favor in the showyard. The Shire is the weightiest and most powerful of all breeds, possessing greater width and depth of body and more bone than the Clydesdale, the Suffolk, or the Percheron, but he lacks their speed and, what in the eyes of foreigners is a greater defect, he has too great a profusion of hair on the legs. With home breeders ample "feather" is regarded as prominent characteristic, prized as an adornment as well as in the belief that it denotes plenty of bone, robust constitution, and hauling power. This view is not endorsed anywhere abroad, nor indeed does it meet with general acceptance in all parts of England. The profusion of hair which pleases the eye in the show ring is a great inconvenience on the land. Fashion and utility in this respect are so wide apart that it seems not uncommon for farmers to keep one type for showing and another for working. In North and South America, in Australasia, and on the Continent, the Shire is rejected because of the hair on the limbs. Mr. Tindall, who has been one of the staunchest supporters of the breed, merely calls attention to what is a hindrance to the opening up of new markets, and suggests that the question might be considered of modifying the limb formation in accordance with foreign preference. He does not urge that this should be done at a sacrifice of weight or power, but believes that it might be possible to effect the alterations in the limbs without injury to the other qualities.

TO DESTROY FLEAS.

To the Editor: Last summer I had in my barn thousands of fleas. I tried to destroy them by using creso-dip, but did not kill them all. I thought they would die during the cold season, but they did not. With these warm days they are multiplying fast. Please let me know through your valuable paper how to get rid of this pest. Some of my neighbors have them in their barns and they too would like to know how to get rid of them.—R. C. Corcoran.

Fleas can only be permanently checked by destroying their breeding places, which are in the dust and dirt that accumulate in cracks and corners around barns, sheds and dwellings. After all the dirt possible is removed, make a thorough application of some destructive material like creso-dip used above, or quicklime, carbolic acid, coal tar, petroleum or similar substance. In the Report of the U. S. Department of Agriculture on Diseases of the Horse it is recommended to follow this by applying boiling water to the stall and perhaps painting the same with oil

of turpentine and boiling the blankets. If a good application of pine sawdust can be made to the floor, so much the better. A recent suggestion is to follow the cleaning up with a thorough distribution of flake naphthalene. This is most effective where the stable or room can be closed tight for half a day, or even 24 hours. The main idea is to remove all the dust and dirt possible, and to make life miserable for any fleas that are left by the application of some destructive material like those named above.

SILOES IN ARIZONA.

Answering a careless writer who stated that there are no siloes in Arizona, a dairyman at Safford, Arizona, writes to Hoard's Dairyman:

"I have a concrete silo and one of my brothers has a stave silo. We put them up and filled them about the first of November, 1912, and have been using silage from them ever since.

"This is the first silage we have ever fed. I think it is one of the best feeds we have ever used for horses as well as cows. I am feeding about 40 to 50 pounds to each cow per day and nearly as much to each horse, and my horses have never done better on any other feed than they are doing now, and I am working them hard, plowing and harrowing with them every day. So far, I have nothing but praise for silage. It is a good feed that we can raise on land that has produced a large crop of wheat, barley or oats the same year. We can put in small grain in November, December and January, harvest the grain in May and June, then put in corn and fill the silos in October, thus producing a heavy crop of both small grain and corn.

"There will be many silos built in this part of Arizona, (Graham Co.) this year as people come from all parts of this valley to see my silo and examine the silage, all expressing favorable opinions."

[Of course, one has to be careful about feeding silage to horses; it must be free from mold, fresh from the silo, etc. Horses are more liable to injury than horned stock.—EDITOR.]

BERKSHIRES

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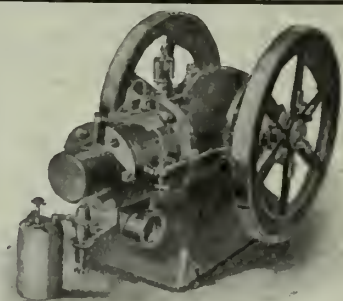
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From the herd of D. R. Hanna, Ravenna, Ohio.

This is the best draft of Short-Horns that has ever been sold from this herd. Amongst the lot are many show cattle, the chief attraction being the Junior Champion heifer at the last International. The young bulls are a very attractive lot, all being of the richest Scotch breeding, many of them being sired by Imported Villager, whose get stood first at the last Kansas City Royal Show.

Write JOHN GARDEN, RAVENNA, OHIO, for Catalogue.

DRIED POTATOES AS STOCK FOOD.

German stockmen are using dried potatoes as a stock food with the best kind of results. Similar use of the tubers might be fine in California, especially when we have a big surplus, like we have this year. Then, too, potatoes would balance up better with our greatest roughage, alfalfa, than any other food, and it would be a decided advantage to the market if a lot of low-grade potatoes could be disposed of with fair profit as a stock food instead of being left in the ground to rot or sent to the consumer for as much as could be gotten for them.

The way they do it in Germany the following from a consular report will tell:

"The use of dried potatoes as food for cattle arose from the impossibility of feeding raw potatoes without causing certain forms of sickness. It was equally impossible to boil large quantities without heavy investment for specially constructed boiling apparatus, and in any event raw potatoes can be preserved during a limited time only and are subject to deterioration toward spring, sometimes being a total loss. These several inconveniences are avoided by drying potatoes according to processes which apparently originated in 1902. By feeding swine and sheep with six different kinds of dried potatoes it has been proved that the food is digestible."

According to tests made by the Board of German Agriculturists, it was demonstrated that the one-third of strengthening food generally given to horses in the form of grain could be replaced by dried potatoes and such animals would be kept in excellent condition. In two out of four tests with horses it was shown that dried potatoes accelerated the shedding and regrowth of hair.

The results of favorable tests caused the establishment of a great many potato-drying plants doing excellent work.

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Kendall's Spavin Cure has now been refined for human use. Its penetrating power quickly relieves swellings, sprains, bruises and all forms of lameness. It is just what you need around the house. Write for many letters from users to prove its effectiveness.

S. Young, Franklin, Vt., writes: "Since getting such good results, I now use your Spavin Cure as an all purpose family liniment, and have found it to do all you claim and more."

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Dr. B. J. KENDALL CO.
Enosburg Falls, Vt. U.S.A.

the more so as a great number of technicians endeavored in the meantime to improve the method of manufacture.

COWS OF SPIRIT ARE DESIRABLE.

To the Editor: Note article of J. C. Loomis, issue of March 1, 1913, entitled "Holsteins vs. Jerseys." We have handled both breeds. The claim that the Holsteins are quieter dispositioned is far fetched. Any good cow has a nervous temperament. Large cattle are slower of action than small, the same with horse breeds. But a Holstein will resent abuse quicker than a Jersey, and when she does the milker will go to the wall, where he should, or out of the barn. A dairyman who will abuse his own cows is crazy, and if he allows the hired man to do it he is a coward.

There is no breed that responds to proper treatment more profitably than the Jersey, nor have any breeds demonstrated that they will produce so good returns for the feed consumed, in butterfat. The dairy farmer has his feed to market to the best possible advantage. The Jersey breed will do it if handled as any cow should be. "Wisconsin Dairy Competition," page 273, of the same issue of the PACIFIC RURAL PRESS, has a very fair statement of the points at issue.

Lockeford.

N. H. LOCKE.

EYE INJURY OF HORSE.

To the Editor: I have a horse that hurt his eye in the stable. The injury is on the eyebrow above the upper corner of the eye. It swelled pretty badly. At first I steamed it with hot water until the sore broke. I wash it with warm water twice a day, but the matter comes from it all the time. The eye seems to be all right, and is not sore. What should be done for it?—E. L. B., Santa Ana.

ANSWER BY DR. E. J. CREELY.

This looks like an injury severe enough to destroy the tissue underneath. I would advise you to call in the nearest qualified veterinarian to cure the wound. It is more than likely that the bone is effected and if not cared for may affect the eye.

San Francisco Veterinary College.

PIGS LOSING TAILS.

To the Editor: We have five pigs, 17 days old, and when they were farrowed they had rings around the roots of their tails, and now their tails are dropping off. What is the cause, and what can I do for them?—B. O., Atwater.

ANSWER BY DR. E. J. CREELY.

This is caused by interference with circulation before birth. Apply Tinct. Iodine around the affected parts once daily and if it shows no signs of improvement after one week amputate.

San Francisco Veterinary College.

LEAKING MILK.

When a cow leaks milk she apparently is doomed to keep it up whenever she has a full udder as no permanent methods of preventing the trouble have been found. The only way to do is to use some mechanical means to keep the milk in. Possibly the most convenient method is to put a little collodion on the end of the teat after milking. This is removed before starting milking, and some more put on when the milking is over. Rubber bands can also be put on, fairly tight, but not tight enough to cause discomfort to the cow. Leaking of milk is caused by rather weak muscles in the teat and there is apparently no known means of strengthening these.

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The young stock that will be sold have been recent importations from the best breeders of the East.

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All stock fully guaranteed.

Lunch served; sale under cover.

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Send for my handsome illustrated catalogue, which gives pedigrees of stock to be sold, also pedigrees and photos of the great sires and dams now on Hillier Jersey Farm.

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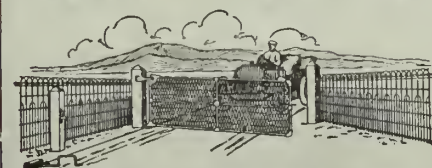
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SAFE DEPOSIT VAULTS.

Conditions for Profitable Geese Raising.

[Written for the PACIFIC RURAL PRESS by
SUSAN SWAYSGOOD.]

The goose, like the turkey, is most profitable fowl when it is given plenty of room. This is not because the goose is a great rambler, but because it will when given range pick up most of its living. While they cannot be advantageously kept in close confinement, they are easily fenced and kept in bounds. If given a small pasture where they can graze and get water, stock geese will be very little trouble. In fact, I don't know of anything in live stock that will do well on as little care as geese. Why geese are not kept in larger numbers on this coast I do not know, for wherever there are Jewish people there is always good sale for them. But the supply is certainly small.

Green geese can be fed and gotten ready for market at a cost, say from 5 to 8 cents a pound, where everything in the way of food must be bought, much less if they can have pasture. Considering they will weigh from 9 to 12 pounds at 10 weeks of age, I really don't understand why more of them are not raised. From my little experience with geese last year, I should say it would pay much better to sell at 10 weeks old than to keep until mature, unless they can be turned out on land that is worthless.

At 10 weeks my goslings weighed 10½ pounds each, but I kept them all summer and had to feed them once a day. But I will say that no better kind of live stock I ever kept were so docile and easily kept in bounds.

I did not pluck them, but they performed that duty for themselves, which was satisfactory to me even if I did lose the feathers. Whatever may be said about plucking, the fact remains that it is cruel; true they pluck themselves, but let me add they only pull feathers

that are loose, and the pulling does not hurt, while we, when we pluck for feathers, pull, hurt or no hurt. I have heard geese set up unearthly yells at picking time in the old country, and I am sure if it did not hurt they would not make such a noise.

Almost any kind of shelter will do for breeding stock, and very low fences will keep them in.

FEEDING BREEDING GESE. (Wilbur).—"Turn out on pasture from June until fall; feed no grain while grass is available, then feed lightly of oats and whole corn. After February 1, give a full ration—a mixture of corn meal, shorts, beef scrap, boiled potatoes or turnips in the morning and whole grain in the afternoon."

FEEDING BREEDING GESE. (Newman).—"They must have a pasture where from early spring they will live almost exclusively on grass, clover or other, needing little if any grain, and thriving well. Do not feed much corn in winter, as it makes them too fat. The way I feed is this—I take some boxes about 8 inches deep and put grain in them. These are placed in the pasture away from other fowls. One need not be careful in feeding as is the case with other poultry, as you cannot spoil their appetite. And by putting boxes of oats and barley in the runs, they get a good run and light feed, and are in no danger of overfeeding."

As the above authorities are eastern breeders we must remember that instead of February 1, we should begin at least one month earlier, and I am inclined to say two months, making it December to commence feed for eggs. You will notice that corn is not in favor with the breeders, so beware of it on this coast. Oats and barley are better because not so fattening.

HATCHING GOSLINGS.—It will be found best to keep the geese laying by taking all eggs away and hatching with hens. From what I can learn, hatching goose eggs in an incubator has not so far been satisfactory. But any good setting hen will do to hatch with the trouble that comes at hatching time. Last year I set a huff orphington hen with five goose eggs and when they hatched she stamped on them and killed every one. Next time I will know enough to take them away and wrap up in a moist flannel cloth and finish the hatch somewhere around the kitchen stove.

The period of incubation is 30 days, and usually hens are tired out by that time, so I think the goslings can be handled better after they once chip, unless one has very quiet hens that can be trusted. Mine was a young hen.

Warmth is very necessary to the little birds after they are hatched, the first 24 hours give no food or water, but keep them warm either under good quiet hens or in a small box that they cannot get out of. An old flannel cloth will be found good to wrap them in.

As chilling is the only thing to be guarded against it is well to keep them where you can look after them in cases of change of weather, just for a week or 10 days. After that they will be stronger and will stand it better. But they are very susceptible to cold while very young. Until you can trust them to run at liberty it is best to confine them in small runs that can be moved, and always put a box for shelter along with it.

Now as to feeding, if you can put them on a nice alfalfa patch for the first week you need not feed but little else. I fed bread soaked in milk and rolled oats for a few days, then I turned them out in

the garden and they pulled all the little tender weeds as fast as they came up. Along with grazing I fed them twice a day as long as they would eat it, and

changed the feed to suit their growth.

Sloppy food is not good for them so all mashers must be made just as you would for chickens. If they are to be fattened

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Meat Meal Bone Meal
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It saves expense and
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Poultry Department, Hopland, Cal.

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Selected and mated to imported stock cockerels.

BABY CHICKS at \$12 per hundred.

EGGS \$6 per hundred in lots of less than 1000 eggs. Orders in excess of this, 10c per dozen above highest market price one week before shipment. 75 per cent fertility guaranteed.

8000 hens yarded—sanitary conditions perfect.

Well raised—well culled—eggs will produce layers.

PENS—TRIOS—SINGLE BIRDS OF ALL BREEDS.

BUFF ORPINGTONS—WHITE WYANDOTTES—RHODE ISLAND REDS AND BARRED PLYMOUTH ROCKS.

EGGS at \$6 per hundred and \$15 per hundred for **BABY CHICKS.**

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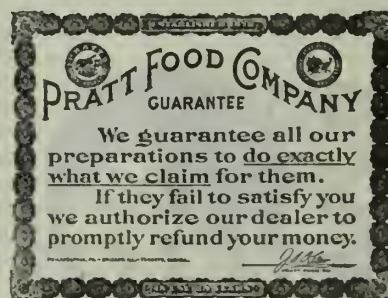
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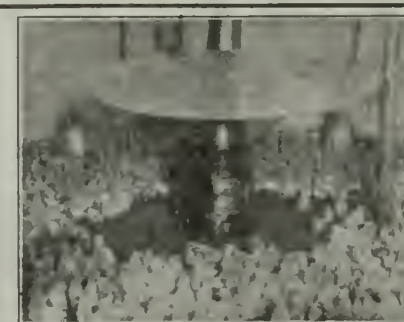
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and has proven to be the most successful brooding and heating stove on the market. Awarded Gold Medal for most meritorious California invention at California State Fair. Perfectly safe, simple, easy to manage. Burns Stove Distillate, Engine Distillate, Coal Oil, and, in an emergency, can burn Wood or Coal. For full particulars write

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MAMMOTH BRONZE TURKEY EGGS—From the largest and best pure-bred flock in the world. All turkeys carefully selected, and combine the greatest prize-winners and the best blood of the East and Middle West. They have large bone, long deep bodies, full breasts, brilliant plumage and are healthy. No inbreeding. Write for further information. Geo. A. Smith, Corcoran, Cal.

OUR GOLDEN ANTLERS AND SILVER CAMPINES took several first prizes both for the fowls and the best white eggs at San Jose, November, 1912. From Jan. 1st to Oct. 31st, 23 hens laid 4148 eggs, and are still laying. Crystal White Orpington and Anker pullets for sale. S. & B. G. HAIGH, Route 2, Box 4C, San Jose, Cal.

BUFF LEGHORNS—Booking orders for spring delivery of day-old baby chicks from two-year-old breeding stock; also eggs for hatching by setting or 100; 6000 egg incubator capacity. Indian Runner duck eggs for sale. Baby ducks hatched to order. R. M. Hempel, R. F. D. 1, Lathrop, Cal.

THE MANOR FARM RHODE ISLAND REDS have won more prizes, cups and specials during this season at the big important shows than all their competitors. They have the typical shape and rich red color. Eggs, chicks and breeding stock all the year round. Exhibition or utility and satisfaction guaranteed. The Manor Farm, Petaluma, Cal.

THE MANOR FARM HATCHING EGGS—Day old chicks and stock from best quality. S. C. White Leghorns, S. C. Black Minorcas, Barred Rocks and Orpingtons. Send for illustrated price list—it's free. The Manor Farm, Petaluma, Cal.

WESTERN HATCHERY—Fred Dye, Proprietor, successor to Dye & Fredericks. Now booking orders for day-old chicks, from heavy-laying strain White Leghorns. Prices on application. Box 2, Petaluma, Cal.

PIGEON BARGAINS—Fine young Homers, \$1.00 mated pair. Large Runt crosses, \$2.00 mated pair. Thoroughbred Carneaux, \$3.00 mated pair. Discount for quantities. Sunny Slope Squab Farm, Healdsburg, Cal.

SHELLVILLE HATCHERY—Thoroughbred White Leghorn chicks shipped on approval; examine at your home before remitting; no weak ones charged for. Rural Box No. 72, Sonoma, Cal.

MAMMOTH IMPERIAL PEKIN or Indian Runner Duck eggs, \$1 per setting of 13. Toulouse Geese, \$1 per 5. Pearl Guinea, \$1 per 15. Bronze Turkey, \$1.50 per 11. F. Sewell Brown, Newark, Cal.

CROLEY'S POULTRY CONDITION POWDER—A tonic for Poultry. 25-lb. Galvanized Pails, \$2.00. 5 1/2-lb. can, 50c. 2 1/2-lb. can, 25c.

WHITE ORPINGTONS—100 early hatched cockerels and pullets from prize-winners. Sales subject to approval on delivery. Eggs \$5 to \$15 per 15. Jeanne A. Jackson, Oroville, Cal.

BABY CHICKS—Eggs for hatching. Buff Minorcas, White Orpingtons, White Plymouth Rocks, White Leghorns, thoroughbred Hoganized stock. Mrs. C. A. Sanford, Mountain View, Cal.

\$3.00 PER HUNDRED—Standard Thoroughbred White Leghorn eggs for hatching. Hatchable eggs from healthy hens. Heavy winter-laying stock. Andrew Emery, Kenwood, Cal.

BROWN LEGHORN ROOSTERS, chix and eggs, same in Barred Rocks, White Minorcas. W. S. Rose, Yuba City, Cal.

CHOICE BREEDING COCKERELS and day-old chicks, Barred Plymouth Rocks and White Leghorns. Fairmount Hatchery, Box 29, R. 1, Santa Cruz, Cal.

ORPINGTONS—Buff and White. Trios, \$10 up. Eggs, \$3 to \$5 a setting. Chicks, 30 cents each, incubator lots. Mrs. S. Swaysgood, R. 2, Pomona, Cal.

S. C. WHITE LEGHORNS—Heavy layers, California's greatest prize winning strain. Eggs, chicks, stock. Send for list. M. Dutterbernd, Petaluma.

PHEASANTS—Ring-necked China pheasants for sale; also eggs in season. Address T. D. Morris, Agua Caliente, Sonoma Co., Cal.

CHICKS—White Leghorn, White Rock; high-class stock. Send for booklet of prices. Mahajo Farm, P. O. Box 597, Sacramento, Cal.

FOR SELECTED EGGS AND CHICKS from S. C. White Leghorns, see Hopland Stock Farm advertisement.

BABY CHICKS, from heavy layers, White Leghorns, Barred Rocks, R. I. Reds. Free folder. White Hatchery, Petaluma.

BUFF ORPINGTON AND COLUMBIAN WYANDOTE; eggs and stock. Mrs. Leona Brophy, 1415 N. St., Fresno.

at 10 weeks old, of course, you will have to feed from the start, but keep them in good succulent green feed as long as you can. Then, when they are confined for the finishing they will make rapid growth. Newman says, "To fatten—after 6 weeks, half bran, half corn meal, do not feed it sloppy and never allow them to go to water until fully feathered." To this I would add 10 per cent of beef scrap for I never missed one meal that mine did not get beef scrap, and they sure did grow.

Up to date, March 3, my two geese raised last year have laid 22 eggs, and are still busy, how many more I will get I do not know, but although yarded in quite a small enclosure, they are doing well, and are healthy as any geese can well be. I am more in love with geese than ever as they are practically no trouble at all.

EGG MEN ELIMINATE MIDDLEMEN.

A handbill containing the following that has been circulating in San Francisco will explain itself: "Notice! Cheaper Eggs! The Associated Petaluma Egg Ranchers have finally concluded to save you the expense of the commission men's and storekeepers' profits and sell you their own produced eggs direct from their own ranches, which will be delivered daily to 1080 McAllister street, near Webster. All eggs guaranteed to be absolutely fresh. Call and be convinced. The Associated Petaluma Egg Ranchers, 1080 McAllister street. Opens March 3, 1913."

That plan does two things at least; it increases the use of eggs by attracting people's attention to the fact that they can get nice fresh eggs direct from the producer with no unfair profit between hen and ultimate consumer. Likewise, it gives all the margin there is between price to producer, which is about 16 cents just now, and price to consumer, about 22 1/2 cents as an average, to defray expenses or go to either producer or consumer. Just how much margin there is left over between the two after the expenses are paid is another question.

Likewise the egg men have been given another opportunity to knock out the middleman, who gets the brunt of the blame as a rule and deserves the least, that is in the bay cities for eggs and dairy produce, the commission man, the wholesaler. All the eggs, practically speaking, that go to San Francisco go to members of the Wholesale Dairy Produce Exchange, in which the price is determined by actual sales between members. Poultrymen from Petaluma recently met with the

BARRED ROCKS ONLY—Now is the time to order your eggs and hatched chicks. Send for price list. G. L. Hawley, Madera, Cal.

BARRED PLYMOUTH ROCKS, White Minorcas, White Holland turkeys. Stock and eggs only. L. N. Cobbledick, Oakland.

CHICKENS, DUCKS, GEESE, GUINEAS, Pea fowl. Address Wm. A. French, 545 W. Park St., Stockton, Cal.

TRAPNESTED S. C. WHITE LEGHORNS. Eggs, chicks, stock. A. R. Schroeder, Box P, San Gregorio, Cal.

WHITE LEGHORNS—Chicks, eggs, cockerels. Fine stock. Reasonable. O. B. Morris, Lodi, Cal.

CROLEY'S DRY MIXED INFANT CHICK FEED—The first feed for your baby chicks.

BRONZE Turkeys and Eggs. Ed Hart, Clement, Cal. Large size, good plumage, early maturity.

TWIN OAKS FARM—W. H. Bissell, Proprietor, Livermore, Cal.—Buff, White Orpington.

members of the Exchange for a conference lasting several hours, and were invited to become members of the Exchange, where they could sell their eggs without consigning them. Inasmuch as the sales make the quotation, and the quotation makes the price to the retailer, which is 1 to 1 1/2 cents a dozen, 30 to 45 cents a case, depending upon whether eggs are high or low. This would permit the producers to keep the prices as near what they ought to be as supply and demand would permit. However, we think more benefit would come in cutting out the retailer than in any other way; that the first thing spoken of, if well managed, would have most effect in helping matters.

The ranchers of the Durham section, Butte county, state that the acreage to grain will be 25% less than in the past. The decrease has been going on for some time, but this year it is especially noticeable, due to the great cutting up of large tracts for fruit.

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Rate 2c. per word. No order for less than 25c. per week. If you have anything to sell, or want anything, use these columns.

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WANTED—A good lath-house man who understands propagating acacias, eucalyptus, etc. A good proposition for the right man. KIRKMAN NURSERIES, P.O. Box 604, Fresno, Cal.

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EXPERIENCED JAPANESE citrus culturist desires a position in citrus nursery or to take care citrus orchard in northern citrus belt, viz.: Butte, Glenn, Sonoma or Placer county district. Have experience in southern and central citrus belt of California and also citrus belt of southern Texas. Have references. M. Yagi, 1825 Sutter St., San Francisco, Cal.

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If you want cheap, high-class suburban acreage joining the city of Sacramento in tracts of from 1 to 10 acres, write today for our attractive folder and details of the greatest land proposition ever offered in California. NORTH SACRAMENTO LAND CO., Owners of North Sacramento, 1004 K Street.

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Never an opportunity like this before—free pasture, cows on butter-fat payments without a cent cash; land that will pay for itself in two crops, sold on 8 years' time, and only 1/10 cash. Dairymen feeding practically no hay right in mid-winter—using free pasture. Income from cows clear profit. Many herds running \$10 to \$12 per month per cow; some cows as high as \$15 to \$25 per month each. All the cows you can handle on butter-fat payments. You select and bargain for your own cows—we put up the money. Best irrigation project in California and prettiest place to live. One district where there was no shortage of water last year. Gravity system. Alfalfa, 10 tons per acre—that's why more cows can be kept per acre than anywhere else in the United States. No better fruit district anywhere. Fine vegetable soil—silt loam 20 feet deep. Land only \$75 to \$150 per acre with water right. Choice tracts going fast and getting scarce—all sold out within 60 days. Come at once, or write today. LOS MOLINOS LAND COMPANY, Los Molinos, Cal.

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J. E. LAWRENCE, 210 Clay St., San Francisco. Broker and Commission Merchant. Handles all farm products. Ship direct or send samples.

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give the same satisfaction as new ones. Expert mechanics rebore the cylinders, make new pistons, and rings, and refinish all bearings and wearing parts. Every engine carefully

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WANTED

WANTED—A Byron Jackson 5-inch vertical pump; state condition and price. P. O. Box 38, Linden, Cal.

SACKS WANTED—Farmers, stockmen, get the most for your sacks. Send sample by parcels post if possible. Agents wanted. H. EPSTEIN BAG CO., 3176 Mission St., San Francisco.

FARMS WANTED—We have direct buyers. Don't pay commissions. Write describing property, naming lowest price. We help buyers locate desirable property free. American Investment Association, 93 Palace Bldg., Minneapolis, Minn.

TREES AND NURSERY STOCK.

AVOCADOS (budded), Feijoas, Cherimoyas, and other subtropical fruiting plants and trees. We have the largest and finest stock of budded avocados, and the best varieties. We grow only subtropical fruits of proven adaptability and sterling merit. Send for pamphlet. WEST INDIA GARDENS, Altadena, Cal.

FOR SALE—Florida sour orange seed. Order now while we have plenty. They will be higher later on. We also have grafted walnut trees, both black and soft root. Orange County Nursery, 6th and Main, Santa Ana, Cal. Red 3891.

FEIJOA—This superb new fruit is hardy all over California. Sure to be one of our great commercial fruits. Write for prices. COOLIDGE RARE PLANT GARDENS, Pasadena, Cal.

NURSERY TREES, fruit and ornamental. Nearly all varieties to be seen on our experimental place near State highway. LEONARD COATES NURSERY COMPANY, Morganhill, California.

WALNUT TREES—Late varieties, grafted and budded on hybrid root—Eureka, Franquette, Mayette, Concord and Placencia. Dr. W. W. FITZGERALD, Elks Bldg., Stockton, Cal.

MOUNTAIN GROWN BERRY PLANTS—Red raspberries, 12c each; \$2.50 a hundred. Strawberries, \$1 a hundred; \$4.50 a thousand. J. M. MOORE, Inwood, Cal.

VILLA ANNA NURSERY—Fruit and ornamental trees. Burbank standard cactus a specialty. Santa Rosa, Cal. Write for catalogue.

FOR SALE—1000 Cal. Black Walnut Seedlings, 3 to 6 ft., 2 years old; 8c. 3257 Galindo st., off Fruitvale ave., Fruitvale.

E. A. Bennett, of Ducor, Cal., will quote you sour orange seed, delivered to any postoffice.

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Along line new O. & A. Electric Railway. Regular trains running in March.

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All within commuting distance of Oakland, Berkeley, and San Francisco.

Thousand will have small farms and grow just what the Market demands.

THINK OF THIS.

San Francisco, Oakland, Alameda, Berkeley, Piedmont, Claremont, Melrose, Fitchburg, Richmond; in fact, all the bay cities for a

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At your door who do not produce anything, but who are

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The Oakland & Antioch Electric Railway announce that they will begin the running of their trains on regular schedule next month (March, 1913) direct from the Key Route Mole to Lafayette, Walnut Creek, Concord—through the beautiful Mt. Diablo Country.

Thousands will make this beautiful country their future home and keep their positions in the city.

Thousands will farm small ranches and have this wonderful market within one hour's ride.

It's just what you want. Just where you want it.

Take our advice. If you want something that's right, Go and see this country—

GO NOW.

Information gladly furnished.

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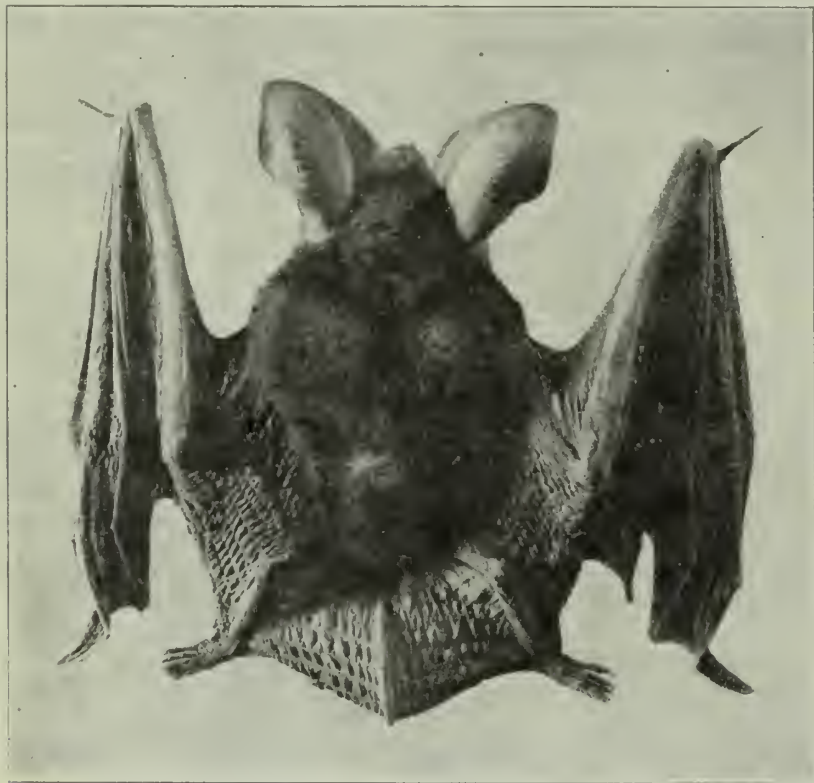
By JOSEPH GRINNELL.

The important bearing of bird-life upon the welfare of the community is fortunately now widely realized. Students of economic ornithology have established the value of birds in checking the undue increase of insect pests in so many cases that the general proposition is accepted by nearly everyone at all conversant with the literature of the subject. Yet this appreciation of the real value of birds to agriculture and horticulture has only come within a very few years. In fact, it was only some ten years ago that the first general laws were passed in the state of California protecting insectivorous and other beneficial or harmless birds from wanton destruction.

It is the purpose of the present article to call attention to another group of

We have in the State of California 26 species of bats, as against 530 of birds. It is seldom that more than four species of bats are to be found in any one locality. But in point of numbers of individuals there is a marvelously large population, more particularly in the foothill regions and interior valleys. Those of us who have made it our business to look for these animals at dusk, night after night, and in very many parts of the State, have little hesitation in placing the total census of bats, at least in favored localities (that is, where they find suitable food in abundance) at approximately that of the insectivorous portion of the bird population.

And this is the fact of paramount economic importance: that all of the species of bats inhabiting California are wholly insectivorous. As far as is known



PACIFIC PALLID BAT (*Antrozous pallidus pacificus*), a species common in southern and west-central California. It feeds on boring beetles, Jerusalem crickets, tomato-worm moths and other harmful insects.

animals which all the evidence now at hand appears to establish as deserving of just as much consideration as the most beneficent of the birds. This group comprises the mammalian order Chiroptera, commonly known as bats. The scientific name just given signifies literally "hand-wings"; and the group, among fur-bearing animals, is unique in the high development of the powers of flight.

The organs of flight are the arms, with their elongated finger bones, between which and the body is stretched the thin, membrane-like, two-layered skin which in its entirety gives the proper supporting and propelling surface for locomotion through air.

In the experience of the average citizen a bat is an animal rarely encountered, then only to be destroyed or driven from the room into which it may have ventured of an evening through an open window. A prevailing prejudice against bats, amounting with some people to an almost superstitious dread, has grown up with our race, possibly because the little beasts are veritable lumps of darkness. For, so different from the warblers and swallows and sparrows, which love the sunshine, all bats are nocturnal, or at best venture forth from their daytime retreats only after the sun has set and dusk of evening is well on its way toward complete darkness.

at the present time, not one morsel of food other than insects is gathered or eaten by our bats. It is true that there are in tropical and sub-tropical regions of the Old World species of bats which eat fruit and thus inflict severe injury to certain crops. But luckily our country has not been invaded by these, nor is it likely to be, unless some foolish person purposely introduces them, as in the cases of the English Sparrow and Starling.

As above intimated, bats seek the most secluded retreats in which to pass the day. Some species hide away singly or in pairs, in crevices of rocks or knotholes of trees, or even hang by their feet from twigs among tufts of dense foliage in trees or bushes. Other species, sometimes two or more of a kind together, congregate in numbers in caves, or old mine or water tunnels, often in barn lofts, garrets or church steeples, and not infrequently behind shutters or signboards against the walls of buildings.

If the rendezvous is particularly favorable, such as a deep cave or a dark and deserted barn loft, the bats may convene in vast numbers, issuing each evening at dusk in an almost continuous stream for many minutes, as they depart to forage over the surrounding country. Occasionally a colony of bats have taken possession of the walls or attic of an unoccupied dwelling; in one case I knew of, a

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21 miles along the Sacramento River near Woodland. The soil is river sediment, which is known to all farmers as the richest and the kind that pays best to farm.

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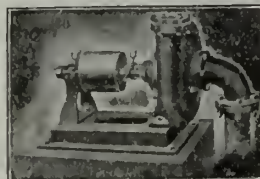
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R. F. WILSON, 447 W. Main St., Stockton, Cal.



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Our retail prices are less than our competitors' wholesale prices.

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PEERLESS IRON WORKS, Sacramento, Cal.
Mention Rural Press.

church, in another a schoolhouse. In such cases considerable annoyance is caused by the rather penetrating odor which comes from the mass of excrement accumulated beneath the bat-roost, especially during damp weather. In some species the bats themselves possess a disagreeable odor. This is notably true of the Mexican Free-tailed bat (*Nyctinomus*) which is plentiful throughout west-central and southern California.

As for the actual numbers of bats in any one area, there is great variability, doubtless for some such reasons as govern the abundance of birds. I feel fairly sure that in certain orchard districts in Los Angeles county and in Madera and Kern counties, there were at the time of observation fully two to the acre flying about, some close to the ground, others high overhead. This would make over 1200 bats to the square mile, or ten million in an area equal to Kern county.

It is obviously much more difficult to estimate population with bats than with birds. A single colony of several hundred bats may forage out over miles of territory each evening, so that the population per acre or square mile is not to be determined from this basis with anything near accuracy. Then, too, some species do not venture abroad until it is too dark too see them. But to the sensitive ear, the presence of bats in various directions gives some clue to abundance. The voices of bats are to be heard all night long during the spring and summer. Like the insect-eating birds, most of our bats migrate to the southward for the winter season, though, as with birds again, we have at least two species, the Red and Hoary bats, which visit us from the north for the winter.

But what of the value of bats? If we closely examine a sample from the heap of excrement beneath a bat-roost we find it to consist of a dense mass of finely broken pieces of the hard parts of insects. Observations upon bats foraging around electric lights, where they are commonly seen in the suburbs of cities, show that the insects caught are not swallowed whole, but that the wings and legs are bitten off by the bat and only the body eaten. The bats are able to handle their prey wholly with their lips, tongue and lancet teeth, and so they devour their captures while in full flight. I have often seen the detached wings of a moth come floating slowly to earth, while the voracious bat flitted on.

In one case I knew of a colony of Pacific Pallid Bats (*Antrozous*) occupied a barn-loft. The floor beneath was strewn each morning with wings and other hard parts of beetles, sphinx-moths, katydids, and Jerusalem crickets (*Stenopelmatus*). The latter element in the bill of fare was rather astonishing when it is remembered that these insects are wingless, and so must have been caught upon the ground, on which they come out at night and take their ungainly way. As far as I have observed, the above-named species of bat is the only one which carries the captured prey to its roost to devour at leisure.

The senses of bats are specialized along one particular line—hearing. This sense of hearing (or feeling of air vibrations) resides in the enormously developed ears, which in some species meet in a sort of hood over the face in front. It is probable that the eyes serve as nothing more than indicators between daylight and darkness—not to distinguish objects. Yet the fact that a given species of bat will appear abroad at a certain time almost to the minute each evening shows that they can appreciate light intensity within a very narrow range.

We can be pretty sure, then, that bats hunt their insect food by sound. Even the wing-strokes of a tiny miller must be distinctly audible to the bat which

snaps it up so unerringly. And the droning of a June beetle must sound to the bat as penetrating as the roar of a bi-plane motor does to us. There is no doubt whatever but what bats perceive sounds of rapidity in vibration far beyond what we can detect. In fact, the ordinary conversational notes of certain bats are so shrill and attenuated as to be altogether unperceived by some persons, and painful to others.

Our bats vary much in size among the different species. The largest is the Mastiff Bat (*Eumops*) of southern California, which can cope with the largest insect that flies. *Eumops* has a body length of 6¼ inches, and a stretch of wings of 21 inches. Then there are the little pipistrelles (*Pipistrellus hesperus*)—bats that “pipe to the stars”—which are only 2¼ inches long, with a wing-stretch of 7 inches. These little fellows doubtless choose the smaller moths and beetles adapted in size to their lesser equipment.

Unfortunately no detailed study has yet been made of the food of bats, as there has in the case of birds. But enough is known to make it certain that vast quantities of night-flying insects are destroyed by the bats every twenty-four hours. It is further obvious that the species of insects thus affected by the bats are not at all the same as those combated by the diurnal birds. Thus it can be said that the bats are complementary in their relation to insect repression, to the role played by birds in the daytime.

Accumulations of bat excrement have been found in caves, of such large extent that it has been mined and sold as fertilizer of high value. Think of what myriads of insects are represented in such deposits! A colony of bats in a farming district should be appraised as an asset. It should be made unlawful to disturb them.

I know of one case where a colony of bats had taken possession of a school house. The odor, and the distracting gritty squeakings of the bats branded them as a nuisance. The remedy put into effect by a neighbor was fumigation with sulphur. After this treatment the walls were partly removed and a “wagon-load of bats was hauled away.”

What a destruction of valuable property! Had the people only waited until after dark some night, after the bats had left for their evening of insect gathering, and then boarded up all the entrances to

the wall-space, the animals would doubtless have found refuge in some unobjectionable place in the vicinity, and would have continued their nightly benefactions.

By the farmer of intelligence bats should be looked upon not as ugly

“vermin,” but as valuable helpers. They do not harbor bed-bugs, but make way with destructive insect pests. They work the night shift.

Museum of Vertebrate Zoology, University of California, Berkeley, March 10, 1913.



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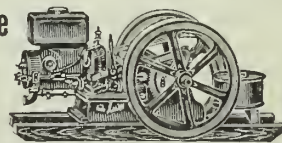
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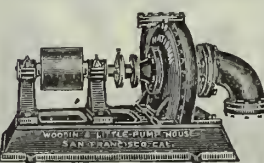


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AGRICULTURAL REVIEW.

Live Stock Markets.

A big price for cattle was received last week by John Matthews of Topo, Monterey county. Matthews shipped 226 head to the Western Meat Co., receiving 7 cents per pound for the same, netting \$17,000 for the lot.

Up in Portland last week receipts were much more liberal than in the few weeks before, and the prices were less steady as a result, although with an upward tendency. Steers, prime, went at about \$7.70 to \$7.75. The hog market is rapidly advancing to the \$9 level of two years ago, bids of \$8.75 having been secured. Portland is now the highest hog market in the country. Sheep were going nicely also, top prices for several cars being from \$6.25 to \$6.35 for yearlings, \$5.25 for ewes, \$7 and \$7.25 for lambs. The future looks very promising.

One of the finest lots of horses ever sent from Monterey county left Salinas last week. There were 17 in the lot, weighing from 1400 to 1850 pounds.

Raisin Association Controls.

It is announced that the Associated Raisin Company has secured practically 75% of the raisin acreage in the State, thus giving it control of the crop for the season of 1913. Since reaching approximately this figure, growers who have been holding off for fear that control would not be secured have come in. Practically all of the raisin crop of San Diego county is contracted.

The only difficulty of importance now is to get all the capital subscribed, as the company is handicapped by lack of subscriptions. Growers are permitted to pay for their shares through their raisins. If each grower contracting his raisins were to take but one share, all the capital would be subscribed. The management is indignant at the prices offered for the raisins now on hand and will soon take steps to handle the matter.

Since peace in the wineries came by the selling out of independent wineries to the California Wine Association, the price of sweet wines, which fell, after the winery war started, to 12½ cents, has gone up to 22½ cents and thereabout.

Big Hereford Sale.

Warren T. McCray, of Kentland, Indiana, at the public sale of Hereford cattle held at his farm recently, realized over \$500 per head on 72 head of cattle. This is one of the largest averages that has been made in the Hereford breed for a great number of years. The Hereford men have been better organized and enjoy more fellowship with one another than any other breed for the last three years. Since they got together and all work for

one end (the advancement of the breed) Herefords have made greater strides in the bovine world than any of the other beef breeds. It might be well for some of our other breed-breed associations to quit their wrangling, get in line, and pursue the same course as the Herefords are doing.

Big Land Business.

Numerous reports of transfer of large acreages have come in this week. A thousand acres of the H. U. Castle ranch, six miles from Stockton, near Woodbridge, have been sold to R. C. Patterson, a Kansas City banker. The price paid was in the neighborhood of \$150 per acre. It is under irrigation and a fine piece of land.

A body of University of Nevada professors have become impressed with the

advantages of California farm lands and have purchased 140 acres of olive land in the Table Mountain Olive Orchards Tract, east of Oroville.

In the Durham district, Butte county, S. Boyles, a well-known rancher of that district, purchased several hundred acres of land from Anna M. Stanford for a consideration of \$60,000.

The Foote ranch in Knight's valley, Sonoma county, comprising 700 acres, has been sold to J. Bernard, a Nevada mining man.

The Solano Irrigated Farms Co. has added 2,000 more acres to its purchases recently, securing the Danielson and Peterson properties.

Two sections of land at Pixley, Tulare county, have been sold to A. E. Marshall and John Veit. The land will probably be developed by irrigation and set out to

alfalfa. Peter Haack, a large land-owner in Tulare county, has purchased 205 acres between Porterville and Lindsay which will be planted to alfalfa.

One of the largest recent sales in Yolo county has been that of 1500 acres of land near Winters to J. C. Carley, E. P. Huston, Frank L. Spencer, H. L. Huston and A. C. Huston, all of Woodland. The tract is under an irrigation ditch and a large sum is being spent on its improvement.

Separator Inventor Dead.

Carl Gustaf Patrik De Laval, known throughout the world as the inventor of the cream separator, died last month in his native city, Stockholm, Sweden. Dr. De Laval was the founder of the great dairy supply company that bears his name, as well as being the inventor of

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We compound a special fertilizer for the orchard, the vineyard, the farm, which invigorates the worn out soil and gives you a bigger crop of better quality.

The trees in the orchard on the left in this illustration are starving to death for lack of nourishment in the soil around their roots. The orchard on the right has been fertilized and is bearing a bounteous crop.

There is no need of asking which is the more profitable.

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We are indebted to our many patrons for the most successful season in our history.

The last of our orders are now being packed and many gratifying reports have already been received from customers who have already received their stock.

For those who have not been able to get ready to plant earlier, we have packed a few carloads of fruit trees in a refrigerated packing house and will be able to deliver thoroughly dormant trees until this lot is exhausted.

Let us hear from you right away if you think you will be able to plant this season.

2525 Tulare St.

KIRKMAN NURSERIES

Fresno, Cal.

the separator and much other dairy and creamery apparatus. He received high honors from the Swedish Government for his achievements and has been called "the Edison of dairying."

Fruit Notes.

The fruit crop in the Oakdale district is reported to be in the best of condition on account of having irrigation water when needed. A. B. Haslacher, who owns 100 acres of cherries, probably the largest cherry orchard in California, expects the largest crop he ever secured.

Bishop Bros. of San Ramon, Contra Costa county, are planting out 15,000 acres to Bartlett pears this year. They are also putting out 40 acres of walnuts. This will probably give them the largest pear orchard in the bay counties.

During February, Commissioner Earle Mills states that there were shipped into

Butte county the following of the various fruit trees: 15,699 almonds, 11,716 prunes, 9868 peaches, 414 olives, 11,780 apples, 4195 pears, 858 cherries, 339 walnuts, 17,000 seedling apples, 357 other fruit trees and 20,590 ornamental trees and shrubs.

The Mills-Macoun Company has started citrus planting for the season in Glenn and Colusa counties. They will get in at least 500 acres to citrus fruit trees this season, at the rate of two carloads per week.

Shipments of citrus fruit from the south are rapidly falling off, and within a month or so very little more will be left to go out. Already shipments are much less than they were a short time ago.

Poultrymen Are Organizing.

The poultrymen of Tulare county are going at the egg market in systematic style. They are organizing the Tulare Poultrymen's Association, which will work in harmony with the Dairyman's Co-operative Creamery, which has its own sales agency, thus getting both the advantages of co-operation and of co-operative marketing. The Association will also buy its own feed and meet for mutual help and education.

The Arlington Poultry Association, Riverside county, is also getting after the feed problem. The members are figuring out on the composition of the mash that will be most effective in proportion to price and are to all use the same mixture, buying it together.

In Sonoma valley, likewise, the poultry raisers are organizing for commercial advantage. F. W. Lobel was chosen president and Carl A. Bolin secretary-treasurer. The board of directors includes H. D. Burmester, J. K. Bigelow, A. A. Bird, W. Hiser, A. Schytowsky, E. F. Casson and M. F. Crandall. Twenty-nine members joined and paid their dues for a year.

Fairmead Development.

Within the next two months nearly 3,000 acres will be put out to alfalfa in the vicinity of Fairmead, Madera county. The leveling and checking of the land is quite far advanced. A large proportion of the purchasers are dairymen, although the fruit-growers are well represented, and 150,000 trees will have gone in this spring.

In the Modesto irrigation district it is estimated that 4,000 acres will be planted to alfalfa, thus further increasing Stanislaus county's lead as a dairy county.

Down in Kings county the alfalfa increase has also been very noticeable. It is stated in the Kings County Chamber of Commerce booklet that the 1913 plantings will total 15,000 acres, two-thirds of which is around Corcoran.

Dried Fruit Organization.

A preliminary organization of dried fruit men of Santa Rosa and vicinity has been made for a branch of the California Cured Fruit Exchange. Another meeting to complete organization will be held March 29. A dried fruit letter from the Exchange on the market situation, will be found in the market reports of this issue.

The way the dried fruit is handled in Russia is reported by V. P. Neimetz, horticultural specialist of the Russian Department of Agriculture, who is making a trip of inspection through California districts. Dried fruit is sold in Russia for as high as 30 cents a pound.

Standardize Pajaro Apples.

The unsatisfactory season experienced by apple men of the Pajaro valley was the reason for a meeting last week to de-

vise ways and means for the standardization of all apples sent from the valley. The plans also call for better growing methods and the prevention of shipping unripe or unsound fruit under any conditions whatever. Such a plan, if carried out, would doubtless be of great financial benefit to growers, as similar action has been with other fruits, and it would widen the market greatly.

CALIFORNIA'S OLDEST PURE BRED JERSEY HERD.

(Continued From Page 327.)

seems to be an erroneous one, especially with the later models.

Unlike some breeders, Mr. Watson considers the proper time to buy or sell a young animal is when they are from three weeks old upward, and his reasons are that a man buying a young animal should be better able to take care of it as an individual than the breeder who has a great many to care for.

In view of its age and location so near San Francisco as it was, it seems strange that more has not been heard of this herd, but as stated before, up-to-date methods were not pursued, and for several years none of the stock had even been taken to the fairs.

Last year at the Modesto County Fair several head were entered and carried off high honors, competing with animals from all over the county, and this means very nearly the best in the State, as many Jersey breeders of note are located there.

With the fine foundation, location and ability that Mr. Watson has, this herd should and most likely will be a great factor in the upbuilding of the Jersey in California.

Fenn's Post Hole Augers



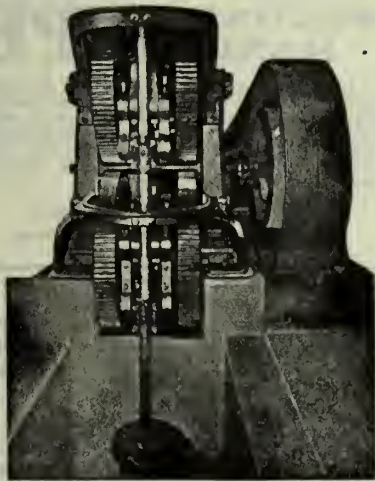
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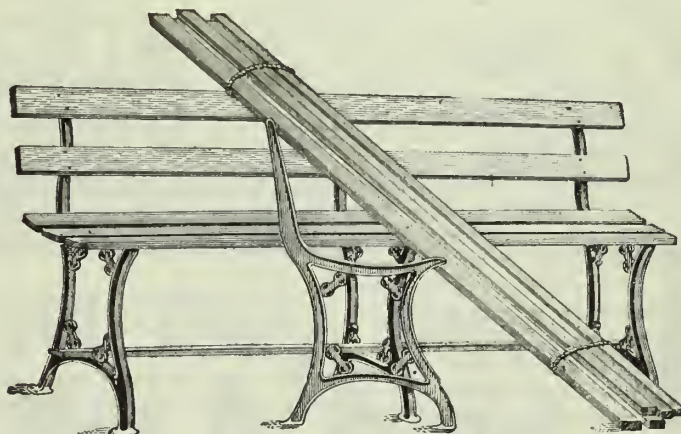
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The stronger one is physically, the stronger the will and the brain, the greater your ability to match keener wits for success. Hence, you will have greater confidence in yourself, as well as other people in you.

All of us are not really efficient more than half the time. Part of the time blue and worried, most of the time nervous and some of the time ailing with sickness. There is a reason and sure remedy for the same, which most doctors and physicians are fast adopting and advocating. Watch them all follow the natural way.

You will probably say, "What shall we do to secure this efficiency and strength?" First of all, one must have pure blood. The skin, lungs, kidneys and bowels are the greatest purifying organs of the body, and methods should be adopted to help these organs do this work. Eat plenty of good, wholesome, nourishing foods; but be particularly careful not to "over-eat." Never stuff yourself. With the use of fruits and the free drinking of pure water, especially night and morning, should enable one to keep the bowels open and regular; but if any difficulty is experienced in this way, use the colon flushing treatment on a few occasions several days apart.

Active exercise is very important, as it not only develops the external muscular system; but strengthens the internal organs and stimulates the depurating process of the body. Any systems of movements that actively use all the the muscles of the body will be found very satisfactory. Will try and outline some splendid exercises for limbering up your tired and sore muscles after the day's work.

Stand erect with arms stretched over head, stoop forward bringing hands down in front of feet to the floor if possible, always keep the knees straight in the meanwhile. Then resume erect position and bend backward as far as possible. Repeat 15 times or until you tire.

Place hands on hips in erect position, bend knees down as far as possible and arise again, repeat until fatigue is evident.

Stretch yourself out straight with chest downward, either in bed or on the floor. Raise body up with the aid of your arms, then lower until chin touches, repeated 15 times or more.

A simple, but effective way for limbering up your sore and tired neck after doing such work as pruning or any other work, which requires constant strain on these muscles, is to move your head downward as far as possible, then backward, now move your head downward as far as possible, then backward, now move from side to side, and finish up by moving head around on its pivot, seeing how far behind you can look without moving your body, and alternate the other way.

Long walks in the open air with deep breathing exercises are particularly beneficial, and one should try and find time to walk each day until slightly fatigued. As your endurance improves, gradually increase the length of walks until one is able to spend from two to four hours in the open air engaged in this splendid exercise, especially if one's duties are indoors much. A dry friction rub is invaluable, afterwards followed by a cold shower or a sponge bath.

Live out of doors as much as possible and be sure your rooms are thoroughly ventilated. Open the windows wide at night, and at all times see that the air you breathe is as near pure and fresh

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as the outside atmosphere as possible.

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You have a brain. Therefore, try and exercise good judgment, applying yourself faithfully, and I am sure that beneficial results will come your way.

Now is the right time of the year to take your "Tonics." Take same regularly every minute of the day and night; be sure to put it into the lungs and not your stomach.—M. E. Porter, Mt. View.

Spring Gardening.

This is the time of the year when one naturally turns to the garden and gets busy in setting out shrubs and planting seeds. The following hints may be of value to those having either a flower or vegetable garden in prospect, but of course, conditions of climate in various sections will necessitate different treatment.

Flower Garden—Continue planting gladioli bulbs for succession. All hardy and half-hardy annuals may be sown in the open ground this month, for summer blooming sow pansy seed before the end of March.

Vegetable Garden—Nearly all vegetable seeds may be sown this month, if the spring is not late and cold. Hill up rows, keep down insects, slugs and vermin, and attend strictly to cleanliness.

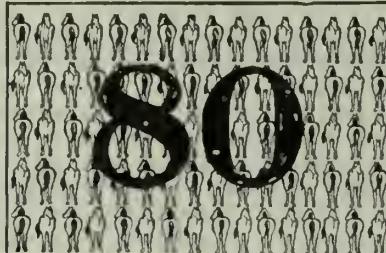
FOR APRIL.

Flower Garden—Plant dahlias, gladioli, tuberose, and all summer-flowering bulbs. Continue sowing hardy and half-hardy annuals. Watch rose-bushes, and if troubled with green aphids, use nikoteen as a spray.

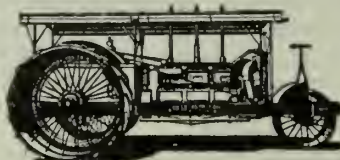
Vegetable Garden—Plant your eggplant, pepper, and tomato plants previously sown under glass. Cultivate well and hill up as required.

Monograms on Linen.

The correct size for a monogram or initial letter on a tablecloth is from two inches and a quarter to two inches and a half, says Harper's Bazar. It should be placed diagonally across the corner just above the plate line. The correct size for a monogram or initial letter on a napkin is from an inch and a quarter to an inch and a half. That, too, is placed diagonally across the corner of the napkin, so that it will be in the center of the napkin when it is folded. Monograms on sheets are the same size as those on tablecloths; but those on towels are usually two inches and a half high. On pillow cases they may be either small, like those on the napkins, or the same size as on the sheets. Simpler letters are usually used on bed linen than on table linen or towels. Script letters are still the favorites, either more



80 HORSEPOWER



The "C. L. B."

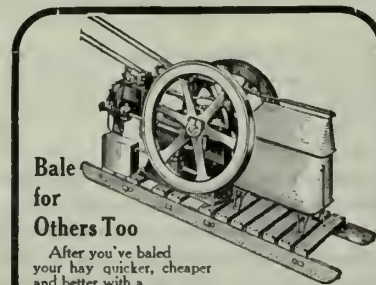
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Rumely Automatic Baler
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you can make good money baling for your neighbors

A 10 h.p. Rumely-Falk Kerosene Engine

furnishes the cheapest power, and the man at the baler can take care of it.

This baler is really automatic. It cuts out a man at the feed table—the Rumely-Falk Kerosene Engine is built to take care of itself. You merely start it and leave it. This is the combination that considers your pocket-book.

The Rumely-Falk Kerosene Engine will lend a hand every day. It comes in all sizes, on wheels, skids or stationary.

Write for Data-Book, No. 118-a on Rumely-Falk Kerosene Engine, and Data-Book No. 245 on Rumely Automatic Balers. Write now and ask name of our nearest dealer.

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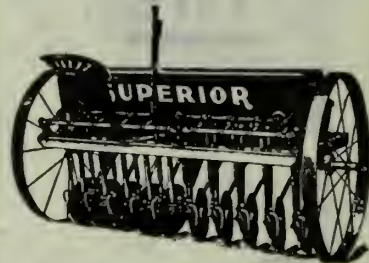


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FARM BOOKS.

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Farm Development, Hays.....	2.00
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Hog Book, Dawson.....	1.60
The Dairy Farm, Gurler.....	1.10
Greenhouse Management, Taft.....	1.50
Mushroom Culture, Falconer.....	1.00
The Study of Corn, Shoemith.....	.50
The Hop, Myrick.....	1.50
Meadows and Pastures, Wing.....	1.50
Trees and California, Jepson.....	2.50
Asparagus Culture, Hexamer.....	.50
New Onion Culture, Greiner.....	.50
American Cattle Doctor, Dadd.....	1.00
Home Pork Making, Fulton.....	.50
Farm Gas Engines, Brate.....	1.10
The Book of Alfalfa, Coburn.....	\$2.00
Swine in America, Coburn.....	2.50
Feeds and Feeding, Henry.....	2.25

Send remittances to
PACIFIC RURAL PRESS,
429 Market St., San Francisco.

or less elaborate. Old English letters, however, are used a great deal, and one sees letters and monograms inside circles, triangles and squares, of original design, many of them very effective. The monogram used is always that of the wife.

Her Demand.

A man and wife recently sold for \$15,000 the farm whereon they had lived for many years. When the purchaser called with a notary to close up the sale to the surprise of everyone the woman declined to sign the deed.

"I have lived on this farm for over 30 years," she said, "and I am not going to sign away my rights unless I get something out of it that I can call my own."

The husband and the notary reasoned with her, but to no avail. She was immovable. Finally, continues the story in Lippincott's, the purchaser put the momentous question, "How much will you take to sign the deed?"

The woman hesitated. "Well, I think I ought to have \$2," she said.

Try a Burnt Match.

The most effective instrument for removing a foreign substance from the eye is a burnt match. Light the match and hold it head up until the head is burnt and the wood well afire. Blow it out, and with a clean, dry cloth, wipe off all the charred portion. You will find a brown, blunt, smooth end, soft as velvet in its touch, and one that will pick up the foreign matter easily and quickly. It is less painful than any other method for the reason that the substance that is sought clings to the match the instant it touches it.

Wash Paint.

Paint must not be scrubbed with sand soap or it will be worn off. Wipe off with cloth dipped in thick suds of white

soap wrung from hot water. Whiting mixed to a cream with tepid water, is excellent for dirty paint.

Removing Scorch Marks.

If linen has been scorched in the ironing the marks may be removed by making a paste of fuller's earth and white soap, moistened with a little vinegar and the juice from a boiled onion. If this mixture is spread upon the marks they will quickly disappear, and no stain should be visible after the linen has been washed.

Sometimes it will be found sufficient to rub over the place that has been scorched half a raw onion. Afterward the linen should be soaked in cold water, and after it has soaked for some time the stain will probably have disappeared.

To Settle Coffee.

I have found the following a very economical way to settle the coffee. Into a jelly glass drop an egg, and put in all the sugar it will take up in stirring. To a pot of coffee use half a teaspoonful of the mixture, and you will find it sufficient, and the coffee as clear as amber. Put a cover over the glass and set in a cool place. This will keep in any kind of weather for weeks.—Post.

The Building of Rome.

Foreman Builder—Now, then, you; hurry up, can't yer!

Laborer—Orl right, boss; Rome wasn't built in a day.

Foreman Builder—No, p'r'aps not; but I wasn't foreman o' that job.—Punch.

Oh Law!

The New Junior Partner—Well, I've succeeded in settling that Arnold case, dad.

The Senior Partner—What! Goodness, boy, why I gave you that case as an annuity.—Tatler.

Cleaning White Straw Hats.

To clean white straw hats—brush the straw thoroughly to remove the dust, then rub into it with a small brush, a mixture of sulphur and lemon juice. This should be of a consistency of thin cream. Leave to dry, then brush again with a clean brush. If necessary the sulphur may be removed by rinsing the straw in cold water, but generally it will be found to brush out quite well.

To Clean Paintings.

To clean and brighten oil paintings sponge the painting very carefully with a pure soap and lukewarm water and dry thoroughly with a soft cloth. With a piece of chamois skin dipped in sweet oil rub all over the surface of the picture. The result will be a pleasant surprise. This cannot injure the finest work of art.

A Rational Argument.

She—You once said you would die for me, and now you refuse to get up and light the fire.

He—that's perfectly logical. If I died for you I'd be done with; but if I get up once and light the fire you'll want me to do it every morning.—Washington Post.

Educated.

The Press—And we understand you are a self-taught as well as a self-made man?

The Personage—I am, sir. At 21, I knew nothink. Then I set to work, and and at 22, I'd taught meself all I knew!—Sydney Bulletin.

Big Letters on Green Paper.

Griggs—Say, did your wife ever find any letters in your pocket and raise a row?

Briggs—She's found X's and V's there, but she always kept quiet about it.—Baltimore American.

"What does this nation need?" shouted the impassioned orator. "What does this nation require, if she steps proudly across the Pacific, if she strides boldly across the mighty ocean in march of trade and freedom. I repeat, what does she need?"

"Rubber boots," proposed the grossly materialistic person in a rear seat.—Buffalo Commercial.



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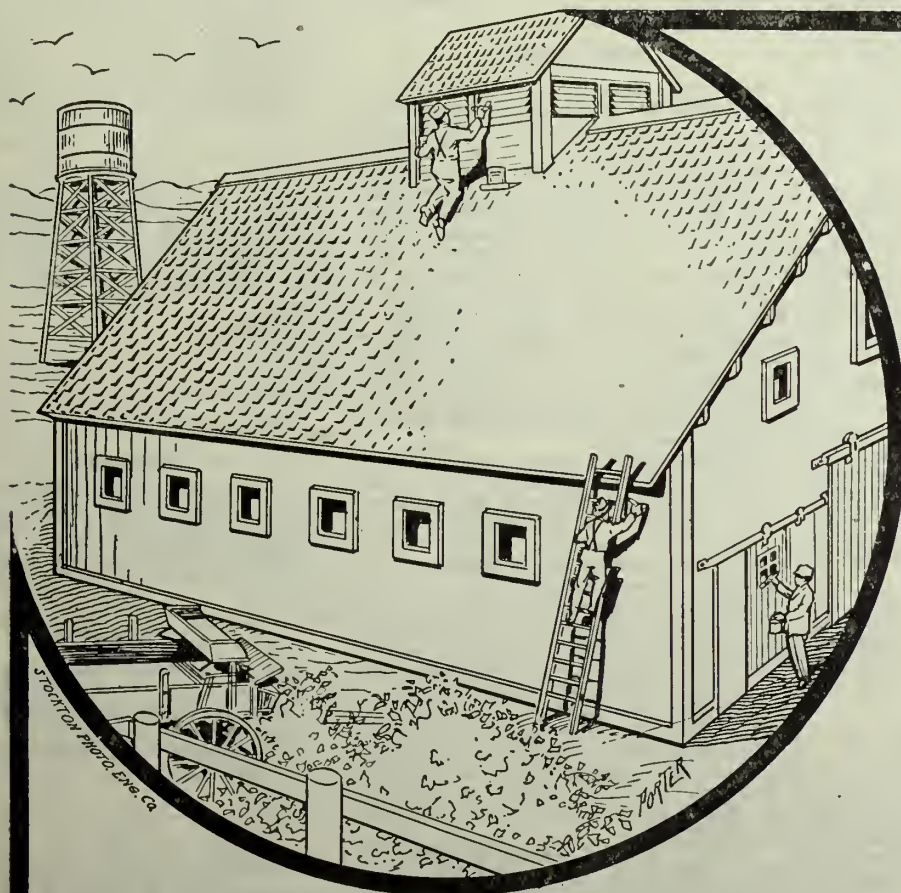
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THE MARKETS.

San Francisco, March 12, 1913.

(Unless otherwise noted, quotations represent prices paid to the growers.)

Cereals.

WHEAT.

Values are unchanged. There is a fair local buying movement, but supplies are ample for current needs and the market is steady.

California Club	.....\$157½@1.60
Souora	..... Nominal
White Australian	..... Nominal
Northern Club	..... 1.57½@1.60
Northern Bluestem	..... 1.67½@1.72½
Northern Red	..... 1.57½@1.72½

BARLEY.

The crop outlook is still uncertain, and with continued dry weather there is a little more firmness in values, though no definite advance has been made. Offerings from the country are very light, but the demand also is moderate.

Brewing and Shipping	...\$1.45 @1.50
Choice Feed, per ctn.	..... 1.30 @1.35
Common Feed	..... Nominal

OATS.

There is little feature to the market at present, and red is little more than nominal, with little trading. White oats find some demand, but with ample supplies there is no firmness to the market.

Red Feed	.....\$1.75 @1.85
Seed	..... 2.00 @2.10
Gray	..... Nominal
White	..... 1.45 @1.50

CORN.

There is a little firmer feeling in Eastern white corn, but this grade is not moving to any extent locally. Other lines remain as before, with trading on a rather limited scale.

Cal. Yellow	.....\$1.45
Eastern Yellow	.....\$1.45 @1.50
Eastern White	..... Nominal
Kaffir	..... 1.50 @1.55
Egyptian	..... 1.70

RYE.

Values are nominally unchanged, but there is not enough demand to establish prices. Considerable poor stock is offered, but receives no attention.

Rye, per ctn.\$1.45 @1.50
---------------	-------------------

BEANS.

There is no great activity at present, but the market is getting into better shape than for some time past, with a gradually increasing demand, and values show a little more firmness. A good shipping movement is expected before the end of the month, and the outlook for prices is good, though the only quotable change this week is a slight advance in small whites.

Bayos, per ctn.	.....\$3.25 @3.45
Blackeyes	..... 3.15 @3.25
Cranberry Beans	..... 4.70 @5.00
Horse Beans	..... 2.25 @2.35
Small Whites	..... 4.65 @4.75
Large Whites	..... 4.20 @4.35
Linas	..... 5.40 @5.50
Pea	..... Nominal
Pink	..... 3.70 @3.90
Red Kidneys	..... 4.00 @4.25
Mexican Red	..... 4.00 @4.20

SEEDS.

The market shows little feature, prices on all lines remaining at the former level, and there is no buying of any consequence.

Alfalfa	..... 15 @16 c
Broomcorn seed, per ton	...\$29.00@30.00
Brown Mustard, per lb.	..... 3½c
Canary	..... 5½@ 6 c
Hemp	..... 3 @ 3½c
Millet	..... 2½@ 3 c
Timothy	..... Nominal
Yellow Mustard	..... Nominal

FLOUR.

Prices have not changed for some time. There is a good demand throughout the State, with some shipping business, although the export trade from this port is limited.

Cal. Family Extras	.....\$5.60 @6.00
Bakers' Extras	..... 4.60 @5.20
Superfine	..... 3.90 @4.10
Oregon and Washington	..... 4.90

Hay and Feedstuffs.

HAY.

Arrivals for the last week are considerably larger than for some time previous, and ordinary lots move off rather slowly, the local demand being very light. Prices, however, are fairly maintained.

and strictly fancy hay in light bales is still scarce and high. The curtailment of local demand is indicated by the fact that the amount marketed here for the last six months has been over 2,000 tons per month less than for the same period of last year. Since the rain in the south, prices there have dropped, and are too low to permit further shipments from northern California. More rain is needed rather badly in the central and northern parts of the State, country prices meanwhile being well maintained.

No. 1 Wheat, or Wheat and Oat	.....\$18.00@20.50
do No. 2	..... 15.00@18.00
Lower grades	..... 12.00@14.50
Tame Oats	..... 15.00@20.00
Wild Oats	..... 12.00@16.50
Alfalfa	..... 10.50@13.50
Stock Hay	..... 9.00@10.00
Straw, per bale	..... 35@ 75c

FEEDSTUFFS.

Alfalfa meal remains steady at the recent advance, while oil-cake meal has dropped sharply, with liberal offerings. Cracked corn is also a little lower. Rolled barley is firmer, owing to crop conditions. Most lines, however, find a rather light demand.

Alfalfa Meal, per ton	...\$20.00@21.00
Bran, per ton	..... 25.00@26.00
Oilcake Meal	..... 35.00@36.00
Cocoanut Cake or Meal	..... Nominal
Cracked Corn	..... 32.00@33.00
Middlings	..... 33.00@34.00
Rolled Barley	..... 27.00@28.00
Rolled Oats	..... 33.00@34.00
Shorts	..... 28.00@29.00

Garden Truck.

VEGETABLES.

Onions and garlic remain rather easy at low prices, as for some time past. The increasing arrivals of spring garden truck are causing a rapid decline in prices, the greatest drop being in asparagus and rhubarb. Arrivals of the former are reaching 2,000 boxes a day, and hardly anything brings over 8c per pound, though at such prices offerings find ready sale. Rhubarb is also coming in freely, and while the demand is good, prices are much lower. Artichokes are also lower, with liberal supplies from San Mateo county. Cauliflower, celery and southern lettuce are all higher, with only fair offerings. Peas are lower on fairly large arrivals from around the bay, but there is a demand for shipment which keeps the market fairly steady. Florida eggplant and southern peppers are lower, but still find a fair demand, while tomatoes and cucumbers are higher.

Onions: Yellow, ctn.	..... 50@ 85c
Garlic, per lb.	..... 1½@ 1c
Tomatoes, per box	.....\$1.25@ 1.75
Cucumbers, per doz.	..... 1.00@ 1.25
Cabbage, per ctn.	..... 40@ 50c
Carrots, per sack	..... 50c
Cauliflower, per doz.	..... 50@ 60c
Celery, crate	..... 1.75@ 2.25
Rhubarb, box	..... 1.75@ 2.50
Mushrooms, lb.	..... 15@ 25c
Artichokes, doz.	..... 40@ 90c
Sprouts, lb.	..... 6@ 8c
Green Peppers, lb.	..... 20@ 30c
Lettuce, crate	..... 1.25@ 1.75
Eggplant, lb.	..... 12½@ 15c
Green Peas, lb.	..... 10@ 14c
Asparagus, lb.	..... 6@ 9c

POTATOES.

Several small offerings of new potatoes are appearing in the local market this week, and are readily disposed of at about 6c per pound. Sweet potatoes are higher, good stock being rather scarce. Otherwise there is nothing new, old potatoes being offered in excess of requirements and accordingly easy in value.

River Whites, ctn.	..... 35@ 50c
Salinas, ctn.	.....\$1.00@ 1.25
Oregon, ctn.	..... 65@ 1.00
Sweet Potatoes	..... 2.25@ 2.50
New Potatoes, lb.	..... 5@ 6c

Dairy Produce.

POULTRY.

The market remains extremely firm, with quite an active demand and unusually light supplies. Eastern arrivals are still running light, and while some are expected toward the end of the week, the market is now closely cleaned up. So far supplies from nearby points have been very small. Young roosters and fryers are higher, and small broilers show a sharp advance.

Large Broilers, per lb.	..... 26 @30 c
Small broilers, per lb.	..... 28 @35 c
Fryers, per lb.	..... 25 @27 c
Hens, extra, per lb.	..... 16 @18 c
Hens, large, per lb.	..... 16 @18 c
Small Hens, per lb.	..... 16 @17 c

Old Roosters, per lb.	..... 10 @12 c
Young Roosters, per lb.	..... 22 @25 c
Squabs, per doz.	.....\$3.00@ 3.50
Geese, per pair	..... 1.50@ 2.00
Ducks, doz.	..... 4.00@ 6.00
Turkeys, dressed	..... 22 @24 c

BUTTER.

Arrivals have been falling off of late, the reduced production being attributed to lack of rain and consequent shortage of green feed. There is hardly enough coming in to supply regular trade requirements, with the result that prices are somewhat higher.

Thurs. Fri. Sat. Mon. Tu. Wed.	
Extras	...34½ 34½ 35 36 36½ 36½
Firsts	...32½ 32½ 32½ 34½ 34½ 34½

EGGS.

The market is picking up a little, as storage operators are showing more confidence, and a large part of the arrivals are going to the ice-houses. There has also been some shipping business, and with the natural increase in consumption due to the low prices, arrivals have been well taken up. Extras are steady at a 2-cent advance, and lower grades are also higher.

Thurs. Fri. Sat. Mon. Tu. Wed.	
Extras	...17 17 17½ 17½ 18 19
Firsts	...16 16½ 17 17 17 17½
Selected	
Pullets	...15½ 16 16½ 16½ 16½ 17

CHEESE.

All prices are steady as last quoted, supply and demand being pretty well balanced at the present level.

Fancy California Flats, per lb.	.....15½c
Firsts	..... 15 c
New Young Americas, fancy	.....18½c
Monterey or Jack Cheese	.....16½@17½c

Deciduous Fruits.

The first small lot of southern strawberries for the season came in the first of the week, and found a ready demand at 50c per basket. Increasing supplies are expected from now on. In the apple market several varieties have been marked down a little, as holders are becoming anxious to clean up. A few lots of fancy northern Spitzenbergs sell up to \$1.50, but move in a rather limited way. Newtowns and Bellefleurs still find a fair demand, but supplies are still heavy.

Strawberries: Southern, crate	.....\$7.50
Apples: Fancy Red, box	..... 75c@ 1.10
Bellefleur	..... 65@ 90c
Newtown Pippins, 3½ to 4-tier	..... 65c@ 1.35
Common	..... 40@ 60c

Dried Fruits.

No change whatever is noted in prices, and conditions remain much the same as last week, the improvement in demand being very gradual. The larger handlers feel some encouragement, however, and are maintaining values on most lines quite firmly, expecting a general buying movement between now and summer. The lack of rain is causing growers to take a firmer view, and this is likely to be reflected in the local market if more rain does not come before long, especially in prunes. The apple situation shows no improvement, and everybody seems to be standing pat in regard to raisins, which have so far found little demand from consuming markets. The New York Journal of Commerce says:

"Business in spot California prunes is showing some improvement, but the demand seems to be confined to the larger sizes. There is no speculative interest manifested, purchases being made against immediate wants only. Supplies of 40s and under the steady demand of late for that size are said to be getting into small compass, and as the supply dwindles and holders show a disposition to raise prices, more attention is being given to 50s, and even 60s are being more inquired for."

"Peaches are finding a small outlet on jobbing orders at the quoted prices. A little better jobbing demand for spot apricots is noted, but no sales for forward shipment from the Coast. In view of the strong statistical situation, the market is firm."

"Little or nothing is being done at present in California raisins for immediate or forward shipment. Both wholesale and retail distributors seem to be well supplied. Prices are nominal."

Evap. Apples, per lb.	..... 3½@ 5 c
Apricots	..... 9 @10 c
Figs: White	..... 3½@ 4½c
Black	..... 3 c
Calimyrna	..... 4 @ 5 c
Prunes: 4-size basis	..... 2½@ 3½c
(Premium: 1c for 40s-50s; 2c for 30s-40s.)	

Peaches	..... 4 @ 4½c
Pears	..... 4 @ 7 c
Raisins—	
Loose Muscatels in sweatbox	2½@ 2½c
Thompson's Seedless	..... 4½c
Seedless Sultanias	..... 3 @ 3½c

Citrus Fruits.

More oranges are now being shipped from California than any time since the freeze. Upward of 100 cars daily are going East. Prices on the Eastern auctions are a trifle higher on good stock.

At New York on Monday, March 10th, the fruit auctions averaged from \$1.20 to \$3.70 per box for navel. At Boston the prices were about the same as the above, though one car averaged \$4.55 per box. Other auction points showed a healthy demand for fruit, but prices were lower. Lemons are bringing good returns, some Eastern auctions showing as high as \$6.10 per box.

Florida oranges are bringing fair prices, averaging from \$1.70 to \$3.20. Growers from that State are having a good season, which would have been very much better had their fruit showed less decay in transit.

Lemon shipments from this State continue light, but it is stated that there will be from 1200 to 1500 cars sent out during the balance of the season.

Arrivals of oranges at San Francisco have been fairly liberal this week, and the top price has been shaded a little, though firm as now quoted. The demand is fair, and fancy lots occasionally bring a premium. Lemons and grapefruit are scarce and firmly held. Frosted lemons are moving in a limited way at \$1 to \$2, while lemonettes, or small stock substituted for limes, find a strong demand around \$5 per box.

Oranges, per box—

Navel, good to fancy	...\$2.00@ 3.50
Frosted	..... 50c@ 1.00
Grapefruit, seedless	..... 2.00@ 4.00
Lemons: Fancy	..... 6.50@ 7.00
Choice	..... 5.00@ 6.00
Standard	..... 3.50@ 4.00

Nuts, Honey, Hops, Etc.

NUTS.

Current values are almost entirely nominal, as all supplies are in the hands of the trade, and there is not much stock anywhere.

Almonds—

Nonpareils	..... 17½c
1 X L	..... 16½c
Ne Plus Ultra	..... 15½c
Drakes	..... 12½c
Langueoc	..... 11½c
Hardshells	..... 8 c

Walnuts, 1912 crop—

Softshell No. 1	.....16 @16½c
Hardshell No. 1	.....15 @15½c
No. 2	..... 10½c
Budded	..... 17 c

HONEY.

Values stand about as before, white and water white being scarce and firm, with considerable inquiry from the local trade. Supplies of the less desirable grades are ample, and receive little attention.

Comb, white	.....14 @16 c
Amber	.....11 @12 c
Dark	..... 9 @10 c
Extracted, white	..... 8 @10 c
Amber	..... 6½@ 7 c
Off Grades	..... 5 @ 6 c

BEESSWAX.

There is still considerable demand for shipment, though there has been little trading, buyers' views being below those of sellers. Nothing is coming in, however, and local offerings are light.

Light	.....32 @33 c
Dark	.....26 @28 c

HOPS.

There is not much trading in California hops, the old crop being pretty well cleaned up, while growers are reluctant to accept current offers for new crop contracts. Considerable contracting is reported in Washington.

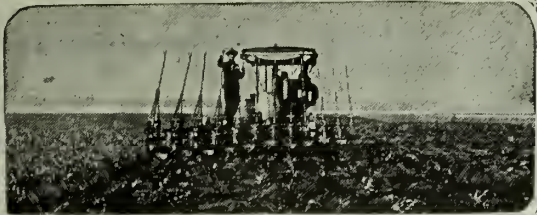
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WOOL.

Quotations on fall clip have been marked down, but these figures are entirely nominal, as there is no business and very little left in the State. Buyers are not making any quotations on spring clip, and the shearing is just starting in the south.

Fall Clip:

Northern and free Mendo-	
eino10 @11 c
Lambs 8 @11 c
San Joaquin and Southern	6 @ 8 c
Mohair15 @28 c



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HORSES.

Recent business has been mostly of a retail nature, though some good stock from Oregon is now up for auction. The market has taken a decided turn for the better, and dealers are endeavoring to get in larger shipments. The demand has been quite general for all types of stock, many country buyers as well as local firms being in the market, and as a rule good prices are paid. It is accordingly expected that the shipments due to arrive within the next few weeks will find a good reception.

Heavy drafters, 1700 lbs. and over \$300@350
Light Drafters, 1500 to 1650.... 250@285
Chunks, 1350 to 1500 lbs..... 200@250
Wagon Horses, 1250 to 1350.... 180@225
Delivery Horses, 1050 to 1250... 125@150
Desirable Farm Mares..... 100@125

MULES.

1200 lbs. \$200@250
900 lbs. 75@125
1100 lbs. 150@200
1000 lbs. 125@175

Live Stock.

Notwithstanding the firmness and high prices of livestock, the local market is well supplied with dressed meats, the demand being rather light. Thin and undesirable hogs are being shipped in larger quantities than they are wanted.

Steers: No. 1 7 1/4 @ 7 1/2 c
No. 2 6 1/2 @ 7 c
Cows and Heifers: No. 1.... 6 1/4 @ 6 1/2 c
No. 2 5 1/2 @ 6 c
Bulls and Stags..... 2 1/2 @ 4 1/2 c
Calves: Light 7 1/2 @ 8 c
Medium 7 @ 7 1/2 c
Heavy 5 1/2 @ 6 c
Hogs: Grain-fed, heavy..... 7 1/4 @ 7 1/2 c
150 to 250 lbs..... 7 3/4 @ 8 c
100 to 150 lbs..... 7 1/2 @ 7 3/4 c
Prime Wethers 5 3/4 @ 6 1/4 c
Ewes 5 1/4 @ 5 3/4 c
Lambs 7 1/2 @ 8 c

DRESSED MEATS.

Steers 11 1/4 @ 11 1/2 c
Cows 10 1/4 @ 11 c
Heifers 11 @ 11 1/2 c
Veal, large 10 @ 11 c
Small 12 @ 13 c
Yearlings 12 @ 12 1/2 c
Mutton: Wethers 10 1/2 @ 11 1/2 c
Ewes 10 @ 10 1/2 c
Spring Lambs 13 @ 14 c
Dressed Hogs 12 1/2 @ 13 c

HIDES.

Prices show little variation, being fairly well maintained at the former level, although there is no great demand at the moment.

Heavy Steers, over 56 lbs. 14 c
Medium 13 c
Light Steers, under 48 lbs. 12 @ 13 c
Heavy Cows, over 50 lbs.. 12 @ 13 c
Light Cows, 30 to 50 lbs.. 13 1/2 c
Kip 14 @ 15 c
Veal 17 @ 18 c
Calf 17 @ 18 c
Dry—
Dry Hides 23 @ 24 c
Dry Kip, 10 to 15..... 24 @ 25 c
Dry Veal, 5 to 10..... 29 c
Dry Calf, 7 down..... 29 c
Horse Hides—
Salt: Large \$2.25
Medium 1.75
Small 75c
Colts 25 @ 50c
Dry 75c @ 2.00
Sheep Skins—
Long Wools \$ 0.35 @ 1.25
Medium Wool, 6 to 9 mos... 60 @ 90c
Short Wool, 3 to 6 mos... 40 @ 60c
Lambs 35 @ 70c

PUBLISHER'S DEPARTMENT.

PARCEL POST FOR FARMERS.

In a recent issue of the San Francisco Chronicle an article was printed urging farmers to use the parcels post, both in buying and selling. While this method of handling small packages is new, yet there is no doubt but it will prove to be a permanent success to both the farmer and the merchant. It is taken for granted that the merchant will advertise to reach the farmer, and the Chronicle urges the farmer to advertise to reach the city consumer. It says: "But before city people can buy and farmers can sell direct, the people of the town must know the names and addresses of the farmers whose products are for sale. This information the farmer will have to provide if it is provided at all, just as those who wish to sell things to farmers tell them where they are to be found and what they have to sell. That is the method by which the experience of ages has proved to be not only the best but the only way to build up a retail trade. And a farmer or a group of farmers can

Ship your **POULTRY, EGGS, HONEY, DRIED FRUIT, RAISINS, NUTS, DRESSED CALVES**, and Produce of all kinds to the old Reliable firm of **W. C. PRICE & CO., 211, 213, 215 Clay St., San Francisco, Cal.**

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build up such a direct trade as certainly and as quickly as a mail-order house can build up a direct trade. Of course, the service must be prompt and satisfactory, or customers cannot be held, but with such service each purchaser becomes an advertiser who costs nothing. The purchasers will usually be of what was formerly called the gentle sex, and their well-known habit of talking things over when they meet makes a tremendous free advertising medium of itself. Few farmers probably realize the great value of what is called the 'good will,' which is built up by advertising. Of course, to do good, the advertising must be persistent, so that readers of the advertising pages become familiar with the name. The best field for advertising farm products is within the 'zone' in which the farmer lives. Distances are short. Delivery can be prompt. Good condition upon arrival is easily assured. The cost of delivery is trifling. We can assure the farmer that this and all other cities are full of people anxious to trade with him. All that they need to know is his name and address and what he has to sell."

TREES OF CALIFORNIA.

W. Robinson, the great English landscape authority, in a review of the "Trees of California," by Jepson, says that the finest natural tree garden known is in California and that this book gives the latest word on this subject. The main purpose of the book is to serve as a field manual for Californians. On the one hand it gives the traveler or forester a means of recognizing our trees in the field; on the other hand, it furnishes the most important and interesting information about the native trees in not only accurate but also in readable form. It is, moreover, the only available book devoted exclusively to Californian trees. Our book department will mail it to you for \$2.50, plus 11 cents postage.

The Western Pipe & Steel Co., of 444 Market St., San Francisco, has just issued a neat little booklet describing their galvanized surface irrigation pipe. They will be pleased to send you a copy if you will write them for Bulletin "D."

A very handsome booklet on the "Great American Levees," issued by the West Sacramento Company, has been received at this office. The views as well as the text given in the book, illustrate in a comparative way the protection from flood-waters in the Mississippi and Sacramento valleys. The West Sacramento Company has a very fine body of land just across the river from Sacramento that is under a levee which was recently completed.

New Sugar Idea.

A unique and interesting idea for sugar beet production is being promoted in connection with land owned by the Solano Irrigated Farms Co. by Messrs. Darley and Combs of Brush, Colorado. The producers of the beets, the growers, will own shares of stock in proportion to land planted and will share profits, after scheduled rates have been paid for the beets and expenses of manufacture taken out, with the persons subscribing the capital for the factory. Ultimately the growers will own the factory. It is planned to have a factory that will care for the beets from 50,000 acres. This year 100 acres of beets will be grown as a demonstration.

A tract of 2560 acres near Berenda, Madera county, has been purchased for a colony of 100 German families who will arrive here next month.

Pump — durability

"THE FIRST COST SHOULD NEVER DETERMINE THE PURCHASE OF A LABOR-
SAVING MACHINE. The ultimate cost is the thing to be considered; and that is the sum of first cost plus the cost of maintenance. There comes a time sooner or later when the ultimate cost is twice or thrice or many times the first cost. Just when that time will come depends upon the wearing power of the tool. If there is anywhere that quality counts, it is in a machine tool. For 'Quality' is that element in a machine which keeps the ultimate cost down by keeping down the cost of maintenance. It pays to buy 'Quality' machines."

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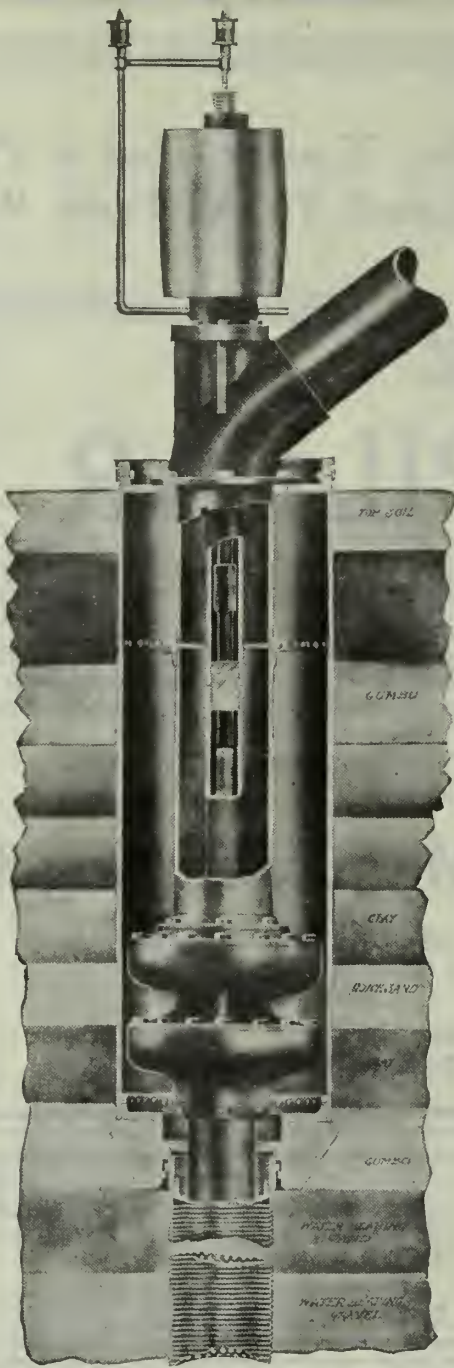
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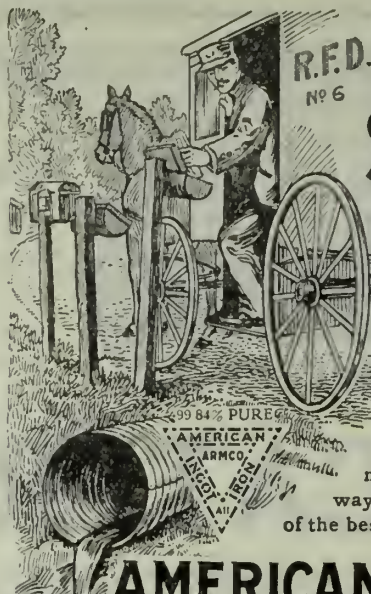
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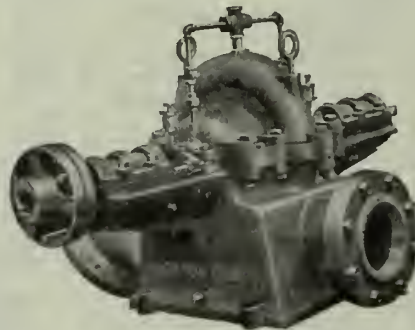
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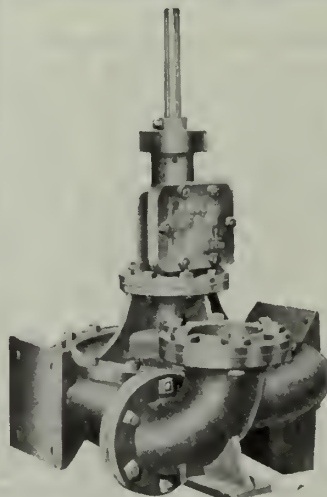
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THE PACIFIC RURAL PRESS

Vol. LXXXV. No. 12.

SAN FRANCISCO, SATURDAY, MARCH 22, 1913.

Forty-Third Year.

BUTCHERING ON THE FARM.

[Written for PACIFIC RURAL PRESS by PAUL PARKER.]

Veal.—Knowing what calves to kill is of more importance than knowing how to kill them. To realize this, all one has to do is to watch the veals come into any of our large cities on the Pacific Coast. Healthy, large heifer calves will be vealed from off the ranges, calves on which the future, the backbone of the herd should depend are sacrificed to present greed in order to take advantage of high prices. A rather prominent cattleman in this State complains bitterly of this fact. His ranches are so scattered that he cannot watch all very closely, and when his back is turned, as it were, his foremen sell large heifer calves to bulge out the receipts for the present, with absolutely no regard for the future.

On the other hand, killing small calves is almost as unbusinesslike as slaughtering the large. In a calf that is stunted or small there is no profit whatever, it is subjected to heavy dockage by the buyer with excellent chances of being condemned by the government inspectors. If there is any money to be made in such an animal it is in its future development, but to kill it while puny is a pound foolish proposition of the first water. There are times, however, when it is necessary to kill unprofitable calves, and that is when the cows are poor or are not doing well and the calf has to be taken from them; also it happens frequently that a heifer with her first calf is unthrifty, and to prevent her running down, the calf should be vealed.

As to what calves a dairyman should veal depends greatly on circumstances; some veal everything, basing their action on the high price of cream, saying that for them it is much more profitable to buy fully developed cows than raise calves. Then, again, other dairymen claim that their greatest profit lies in raising the strong, healthy calves to cowhood. They claim that with cows of only average quality selling around \$70, it is a money-making venture to develop their own heifers; not, however, raising the calves on whole milk, but on some of the substitutes.

Killing and Dressing Veal.—Much of the 'green' veal one sees being sent to the fertilizers is caused by killing the calves when they were overheated. The calf, by nature, enjoys to run, and where the field is large it oftentimes means quite a chase before he is caught. A calf, heated in this manner, especially if the stomach is full, should be put

in a small enclosure for five or six hours. Where the calf is still following its mother, much worry can be averted by placing the mother in an adjoining enclosure, where she can lick her offspring but not feed it.

In killing a calf, unless it is small and can be handled easily, it should be stunned with an ax before cutting the throat. A better procedure this is considered by many butchers than cutting the throat without stunning, because if the calf is large and strong, it is difficult to handle without bruising the flesh, besides there is danger of overheating the animal tussling to get it in position to wield the knife. Then, too, when the calf is struggling it prevents cutting the animal in the proper place, low down on the throat where the arteries meet. When the throat is cut too close to the head, it does not bleed properly and the value of the veal is lessened thereby, as the meat is too dark, making a poor appearance hanging in the markets.

The question of leaving the liver, kidneys and sweet breads in a carcass depends on the size of the calf. Here in California it is cus-

tomary to leave them in calves weighing less than 100 lbs., in anything over that weight they are removed and shipped separately in clean sacks or small barrels if the price warrants it. Where the calf is small and the liver is left in the carcass, care should be taken to remove the gall so as not to break it and spoil everything it touches. It is very necessary in veal to get rid of the animal heat as soon as possible, so where the heart, etc.,



Beef Stock on the Foster Ranch, Lakeville, Sonoma County.

remain, in order to get the air circulating about them, the calf should be split from the throat down. While in the larger animals, where everything is removed, it is only necessary to commence the cut from the point of the breast bone, as there is nothing to hinder the air circulating freely.

Losing Heat.—The secret of good veal is getting rid of this animal heat and bleeding properly, so that the flesh can set. For this reason an animal killed in the evening and allowed to hang in the cool air is in fine condition for shipping. To hasten the cooling, when the calf is hung up on the gambrel, a stick placed in the flanks will spread out the calf so that the air can sweep over every portion. The calf should be hung immediately after it is killed in order that all blood will drain away quickly before it coagulates, for the less blood there is in the carcass the lighter will be the color of the veal and the better price it will bring. "Above all things never let the blood run back over the hindquarters," says an experienced butcher, "and discolor

(Continued on Page 372.)

Pacific Rural Press

Issued Every Week at 420 Market Street, San Francisco.

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Entered at S. F. Postoffice as second-class mail matter.

Address all communications and make checks or money orders payable to

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Copy for change of advertisements must be in office on Monday preceding date of issue. New advertising copy must reach the office by Wednesday a. m. to insure insertion that week.

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FRANK HONEYWELL - - - - - Manager
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D. J. WHITNEY - - - - - Associate Editor

CALIFORNIA WEATHER RECORD.

The following rainfall and temperature record is furnished the PACIFIC RURAL PRESS by the United States Department of Agriculture Weather Bureau, at San Francisco, for the week ending at 5 p.m., Mar. 18, 1913.

Stations.	Rainfall Data.			Temperature Data.	
	Past Week.	Seasonal to Date.	Normal to Date.	Maximum.	Minimum.
Eureka .....	.62	30.42	35.79	56	34
Red Bluff	1.26	14.90	19.84	66	38
Sacramento .....	.28	5.82	15.79	66	38
San Francisco .....	.66	9.92	18.46	64	44
San Jose .....	.30	4.32	13.61	70	32
Fresno .....	.36	4.60	7.56	74	38
Independence .....	.02	3.88	7.38	68	26
San Luis Obispo .....	.38	6.60	16.35	70	36
Los Angeles	T	12.12	12.88	76	42
San Diego .....	.08	5.39	8.24	68	44

The Week.

The clouds have called our bluff and have thrown down a hand which, up to this writing, looks like a two-spot high, but we yield the pot without dispute because of the gladness we have in getting the clouds into the game at all and taking the chances of squeezing something more out of them later. It is interesting to note, at the instance of a Sacramento friend, that this year's clouds are not the idlest ever. After getting one-tenth of an inch at that point on Monday last it was remarked that this year 45 days in the very heart of the rainy season in the valley have only yielded .08 of an inch of rain, but this is not so bad, because the record is 42 days without a drop in 1899. It is fairly angelic to magnify the difference between a drop and a twelfth of an inch, but into such fine figuring have we evidently fallen. Prof. McAdie also gives reflections for San Francisco. "In 1864 we had a dry spell of 42 consecutive days, from January 31 to March 13. We have experienced other dry spells of 15 or more consecutive rainless days during the winter but there was one period between November 16, 1876, and January 16, 1877, without rain in mid-winter." It is interesting to remember that St. Patrick's day broke the drouth this year and that only one year in three has that day been wet. St. Patrick ought to do better to keep his memory green.

Blue Sky vs. Clear Sky.

Talking of the weather leads naturally to mention of weightier matters which are presented to public attention with a wealth of meteorological imagery. We are receiving in installments what promises to aggregate a whole library of descriptions of ways in which the so-called "blue sky laws," which are pending at Sacramento, will crush enterprise and retard the development of the State. Now it would be very sad and unfortunate to do that and we cannot help shedding a few tears over the gaping wounds which fright-

ened promoters are painting over their fifth ribs with such artistic and realistic fidelity. It is actually impossible to see how they can possibly survive such Caesarian cuts as they claim are now aimed at them by reforming conspirators. We have no case to make against the creators of such literature as we have indicated. Such is the popular thirst for reform, in doing everything which hitherto, people have done as they liked, that there certainly is danger of over-regulation and a good stiff fight against regulation is the best way to reduce it to rationality. Unless there is reason in regulation, until we have more demonstration of the teachings of experience to base it upon, we are in danger of plunging headlong into the oratrical paternalism, nationalism and extreme socialism, for which conditions are not ready. All these theories are yielding something for the public welfare: their tenets are being assimilated fast enough, and that the process does not become too rapid is due to the opposition of those who keep crying: "Great is Diana of the Ephesians." Let them cry then, lustily as they will: they are impotent to arrest reasonable progress, as the temper of the people now is.

So far as the opposition of some of those who expect to be seriously wounded goes, we have no sympathy with it. We are no keeper of wild cats. Those who insist upon a green sky, to match the color of the goods they offer, should be exposed under the bluest canopy which the laws can paint for them, and that would be the light blue of midday. It is in fact the clearness of a blue sky, rather than its color, which is essential: the color is merely incidental. It is obvious that a man who has money or time to invest in an enterprise should have opportunity to see clearly its character and reasonable prospects. We do not claim that he should be able to see these qualities: but they should be open to him to see them if he can. We have no expectation of legislating vision and reason into any man. It is a very old observation that people really enjoy to be deceived: they seem to prefer the thrill of folly to the satisfaction of wisdom. Such people should be protected from imposition, of course; they should not be skinned alive: they will shed their own hides painlessly when their own vain imaginings reach their limit, in enterprises which might be reasonable and profitable to the right kind of people. And this fact explains to us why in the clearing of skies over industry and investment there is great danger of discouraging or absolutely preventing proper promotive effort, as some of the publications on the subject are suggesting. If we work for a sky clear enough to make a fool wise we may very likely make it rainless and so interfere with the activity of ordinarily wise men. If we try to fix things so that a fool shall not err therein we may certainly tie them up so that a moderately wise and far-seeing man cannot get in good work for his own prosperity and for the State. Therefore we hope that we shall have a blue sky to disclose fraud and still a clear sky for opportunity and commendable enterprise.

The Quality of Agricultural Enterprise.

Of course we cannot undertake to assign to the proper feline species all the undertakings which come to us in glorifying circulars inviting investment of our surplus earnings. We cannot tell whether the preferred stock in the Bonded Boot-blacks of Boston is a better investment than the First Mortgage Bonds in the Amalgamated Ashes of Pompeii: we do not know anything about these miscellaneous creations of the financiers and express no opinion as to their organization or regulation. When it comes, however, to promotion of agricultural enterprises we have a conviction or

two which press for utterance. We are sure they must not be judged arbitrarily nor without proper spirit, which is an essential element in agricultural success. When they are based upon subdivisions they include an important consideration which is not involved in a project in which the investor has no personal participation, in the way of effort or direction. The promoter may choose a mine in the West for development or a dry goods store in the East for expansion. Passing the first point as to whether there really is any such mine or store in existence by the establishment of the facts, we come, then, to the consideration that the investor has practically no opportunity whatever to shape the operations in which he has placed his money unless the affair is in his own vicinity, in which case he has a voting right which may be, possibly, formative. In an agricultural subdivision he has something tangible and something within his influence and management in the land. Unless he is an imbecile, he can calculate its increments, earned and unearned, for himself, and if he fools himself the public cannot blame itself. The quality of agricultural enterprise involves this as a fundamental consideration. It is right that promoters of such properties should include the principle *caveat emptor* to a greater degree than those who are offering other investments, the course of which investors cannot determine—possibly which they cannot even see: or, seeing, could not understand. The questions, which for the protection of agricultural investors, should be determined by blue sky legislation would be:

First, the title to the land, or water, or both. That is a matter which the viewer cannot see and there have been frauds based upon that fact.

Second, the quality of the land. There is much doubt as to whether there is any really bad land, and not long ago a prominent soil expert of the government declared: "There is no bad land; it is the man on top of the land." Deserts become fruitful by irrigation; alkali land yields to laundrying; hardpan disappears by dynamite; poor land may be enriched by fertilization and hard land becomes mellow by tillage—and so forth.

Third, representations of the land and its capability. This is the point where blue sky legislation should be invoked in all land offerings, it seems to us. There should be some arrangement for State censorship of promotion publications so that the public shall not be deceived by unreasonable and unwarranted descriptions and conclusions. This censorship should be exercised by a group of expert and experienced persons. They should have in mind the capability of the land if placed in the hands of reasonably energetic and progressive owners. They should not condemn it, because it would not support a veranda population nor should they approve it because it might feed a group of paupers, if they worked incessantly. They should have the power to make the representations fit the property in its character and capacity and to punish transgressions thereof.

These specifications of regulation admit a certain amount of optimism, and without it profitable agriculture and State development are not possible. The world would starve if agriculture should be blue-skied down to a grouch. Agricultural possibilities must not be reduced to the pessimism of the expert who reported on the chance of a flouring enterprise that he "found a dam by a mill-site, but no mill by a dam-site." Meantime the water was pouring over the dam and the wheat fields around about were white for the harvest. In the eye of faith he should have seen the mill and have proceeded to realize the vision. Agriculture demands a clear sky and a chance for good work.

A Hopeful Outlook for Regulation.

There is fortunately a fair outlook that out of the blue sky freseeing at Sacramento there may come a reasonable enactment. There is a strong belief that regulation should be undertaken so that wild-eat schemes may be eliminated, but what is the best machinery to sift them out is the present question at the capital. Assemblyman Chandler is chairman of the committee to report a method, and he is credited with saying: "I think the committee bill will put the regulation of the investment companies in the hands of an independent commission. I am not speaking of the committee when I say this. I am of the opinion that the training of a man qualified to hold the position of superintendent of banks would be too conservative to regulate all stock issuing concerns." It seems to us this is an eminently wise conclusion—at least so far as regulation may apply to agricultural investment companies and other agricultural promotion enterprises. Bankers are, it is true, very irregular in agricultural affairs; sometimes very bearish, so that nothing could go through with them; sometimes such plungers that they need to be blue-canopied themselves. Their prevailing attitude seems to be, as Mr. Chandler says, a little too exacting to accept even fair chances, and the man who keeps them all under proper control for the safety of banking, might naturally be expected to act as if he was guarding the funds of depositors rather than seeing only that eager investors were not imposed upon by misrepresentation. It seems to us that a separate organization, including the knowledge of all business and embodying the spirit of all good business and not depressed by too weighty a sense of responsibility except as to telling the real truth, would be the ideal arrangement. For it should always be remembered that the undertaking is for the protection of those who do not think they need it; those who are apt to resent encroachments upon their rights to spend their own money as they see fit; those who really wish to take a fly at high finance because they believe they were born under the millionaire's star; those who are even inclined to feel that you are insulting them when you express a doubt as to the desirability of an investment which they have already decided to make, and which they submit to you, not for criticism but for approval. We never had rougher talk from a man than we gathered once from a client who already had a wild-eat by the tail and desired us to stroke its glossy fur for his gratification.

A Claim Requiring Censorship.

After all these abstractions, it is refreshing to cite a concrete farm claim which needs blue-skying. The telegraph announces that whoever moves to the Balster farm near Edwardsville, Ill., will get a pair of twins. The farm belonged to Deidrick Balster, who died a few years ago. Mr. and Mrs. Bruno Johnston moved onto the farm. In the course of time Johnston shouted at passing neighbors one morning: "Stork came to our house last night." "Girl or boy?" "Twins!" After the Johnstons came the families of Edward Newman and Henry Gerdes. Twins came to the Newmans and three sets of twins to the Gerdes family, and now a new tenant is sought, with a guarantee of nothing less than twins. Is it a fair inducement to investment?

Queries and Replies.

Querists must submit full names and addresses.

Crops Between Trees.

To the Editor: I have fifteen acres of uncleared

land, 3½ miles from Mendocino City, Mendocino county. When I get it cleared and get my apple trees planted, as that is what I want to raise, I want to know what would be best to grow between trees, while the trees are growing, and what to alternate each season, so as not to use up the soil without putting back into it. I want to find out according to scientific investigation what would be best adapted for each season in the part of the State mentioned. I enquire of you as the proper authority to ask about it.—N. E. R., East Oakland.

You must consider very carefully whether it will be desirable for you to plant anything between the young apple trees. Where one is bringing along a young orchard, without irrigation, as we presume you are intending to do, it is doubtful whether it is not better policy to give the trees all the advantage of clean cultivation and ample moisture than to undertake intercropping. Of course, if you live on the place and wish to grow vegetables between the rows, the thorough cultivation which you will be able to give in order to bring the vegetables along satisfactorily would help to preserve moisture enough both for the vegetables and for the trees, but this is very different from growing a field crop by ordinary methods of cultivation. You should certainly select a crop which will require summer cultivation, like corn, potatoes, squashes, and beans, and never a hay or grain crop which takes up moisture without working the soil for the greater moisture conservation which hoed crops require.

In choice of hoed crops to grow, you would be governed by what you can use to advantage, either for house or the feeding of animals, or what you can grow that is salable with least loss of moisture in the soil. No one can definitely outline this for you theoretically; the choice is governed entirely by local conditions, except that leguminous plants—peas, beans, vetches, clovers, etc.—do take nitrogen from the atmosphere and can thus be grown with less injury and sometimes with a positive benefit by assisting in the fertilization of the soil.

Licorice Growing.

To the Editor: Will you favor me with information on licorice growing? Where in this State is it grown, and is it manufactured into the licorice sticks sold at druggists? Does it need heat and moisture, and what kind of soil and culture is wanted for its success?—D. E. M., San Rafael.

So far as we know, there is no commercial product of licorice in California, and there never was any profitable product of it. It was tried a quarter of a century ago by the late Isaac Lea of Sacramento county, who succeeded admirably in getting it into his land, but could never sell the roots at a price which would pay to take them out of the land. An industry with it would require the extraction of the juice and concentration of it into stick licorice: the roots cannot be gathered, dried and shipped East with our costs of labor and transportation to compete with the product of Calabria. The roots have to be chased underground by the rod and they sneaker to beat the band, so that it becomes perhaps the worst weed a man can get into his land—barring none. It will take any kind of soil and needs practically no cultivation, if the land is mellow, rich and moist so the running will be good. Our advice to you about licorice is to forget it.

Growing Castor Beans.

To the Editor: Will you kindly give me some information on the castor oil bean, such as the kind of bean best to plant, when to plant and harvest, the best soil and where one can market them.—M. J., Morganhill.

Castor bean growing has been undertaken from time to time during the last thirty years in vari-

ous parts of California. There is no difficulty about getting a satisfactory growth of the plant in parts of the State where moisture enough can be depended upon. There was at one time something of a product in the lowlands of Los Angeles county about El Monte, and it was held to be profitable until free importation of East India beans and growth of the castor bean in the central West reduced the price. Although the growing of beans is easy enough, the harvesting is a difficult proposition, because in California the clusters ripen from time to time, have to be gathered by hand, to be put in the sun to dry, and finally threshed when they are popping properly. The low price, in connection with the amount of hand work which has to be done upon the crop, has removed all the attractions for California growers. There is also, some years, an excess of production in the central West, which causes prices to fall and makes it still more impracticable to make money from the crop with the ordinary rates of labor. The oil cannot be economically extracted except by the aid of the most effective machinery and a well equipped establishment. Oil-making in the rude way in which it is conducted in India would certainly not be profitable here.

Red Spider on Peach Trees.

To the Editor: Can you tell me if a carbolic spray is of any use to control red spider on peach trees? I have used the dry sulphur spray for the last two years, but without any great success, except on young trees. I think the reason of this is that the greater part of my orchard is of very big trees and it is a difficult matter to get the sulphur distributed sufficiently all over the trees to do much good, and just at the time when the trees require sulphuring most, the orchard has to be propped, and this prevents anything being done except by hand—which is a long, tedious job and never gives good results. I thought perhaps if a carbolic spray would do any good, this might be done about the end of June when one could get down the rows with a spraying outfit. The red spider is a very serious matter with peach trees and gets worse every year.—A. A. D., Fresno.

If you make a carbolic emulsion spray to use without injury to the fruit or foliage, there would seem to be no question of its efficiency in killing the red spider. Spiders after hatching are very easily killed with mild insecticides. The dependence upon the dry sulphuring is based upon chiefly with reference to its cheapness and ease of distribution. One would think that you could make a very satisfactory campaign against the spider earlier in the season, not waiting for such multiplication and injury of the foliage as might not be apparent until after your midsummer propping was done, and if such a campaign was made the foliage injury might be obviated. This is a matter which you should look into with reference to the time at which the spiders are hatching out in the locality, striking them as soon as this period arrives.

Taking the Bloat Out of Alfalfa.

To the Editor: Will Italian rye grass and red top clover be a success under irrigation as cow pasture in this county, either separately or mixed with alfalfa? To sow in bare spots in the alfalfa, would the rye grass prevent bloat?—G. M., Madera.

Italian rye grass and red clover will make good pasturage under irrigation and will make a fight with the alfalfa to the best of their ability. The admixture of rye grass will reduce the danger from bloat. Red clover will not have that effect, because red clover is a pretty good bloater on its own account. This seems to be the function of all the clovers according to the rankness of their growth at the time that they are grazed.

Orchard Hints for Beginners.

Walnuts in the Upper San Joaquin.

To the Editor: I am writing seeking advice on what variety of walnut would be most suited to the climatic conditions of our dry interior valley. We have a very deep rich sedimentary soil with perfect drainage. The water-supply is excellent and abundant. In fact, all conditions of soil and water are excellent. As far as I can learn, there is only one commercial walnut in the lower San Joaquin, but in this region there is an orchard of about thirty trees, which are hard to beat. Neither the nuts or trees showed any signs of sunburn, and one tree produced 325 pounds of nuts at thirteen years of age.

From observations of these trees, I feel sure walnuts can be grown in this climate commercially and have decided to plant ten acres soon. These trees are Franquettes, but do you not think the Eureka should do as well, or what other variety has the characteristics which would seem to make it best adapted to our hot dry summer?

What do you consider the chances of successful walnut culture in this region? I find I am in the dimmest, darkest minority when I try to talk walnuts for our locality, but if a few trees will do well, why wouldn't an orchard with better care and handling than the mentioned trees?—C. W. P., East Bakersfield.

We do not believe that the question of the best walnut for your region has been definitely answered yet. The soil conditions which you describe seem to be eminently suited for the tree, and the demonstration furnished by the observation of the small orchard which you mention should be considered very valuable. So far as we know, the Franquette seems best adapted to interior conditions, and I am glad to know of the additional testimony which your letter furnishes of its suitability. The Eureka may be as good or better, but its behavior in the interior is largely undetermined. It made its record in the coast region. Apparently the best line for immediate planting would be to choose the Franquette largely and put in a few other varieties for comparison so that any extension of the planting might proceed on the basis of local demonstration of suitability. Continue your observations. Look for individual trees here and there in town or country gardens which might yield suggestions.

Starting Walnuts.

To the Editor: How shall I plant black walnuts to grow seedlings for grafting later?—S. C. Glenn.

All that you can do with such black walnuts as you can get at this time of the year is to plant them in sandy loam and keep moist but not wet, covering about two inches of soil above the top of the nut—if you have them where you can regulate the moisture. If they have to take their chances on rainfall, they should be planted deeper than that in a light soil to be below the drying out of the surface. If the nuts have not become too dry, a fair percentage of germination can be obtained. The better practice is to put down the nuts in sand in the fall, soon after ripening, keeping them moist but not wet, and plant out in nursery rows those which examination shows have begun to sprout. This gives a better percentage of growth than you can get by planting out this time of the year nuts which have not been put through such a process.

In the Prune Orchard.

To the Editor: I have twelve acres of prunes grafted on almond trunks. I find a few limbs decaying because the almond stub has not been entirely covered by the growth of new wood. When the decay has not extended too far, is it practical to cut out the decayed wood and fill with cement?

I am using ochre and oil to cover wounds caused by removing limbs, also where bark has been torn from different causes. However, I have read a warning in your paper against the use of oil, but understand it to apply only to young trees. Am I right in this?

I have about one-third of an acre where the

trees have gradually died out, and I believe it is due to oak fungus. A few of the trees on the edge of the opening are becoming affected, and I notice a growth of toadstools around most of them. How can I save trees so affected, and how can I prevent the trouble from spreading? Is it safe to plant young trees where these old trees have been taken out?

Owing to the unusually heavy rains last fall, the ground was moist for weeks, and I have noticed a mold forming at the base of some trees. Will mold or lichens on bark injure a tree, and how can they be removed?—D. B. M., Chico.

There has been no satisfactory method yet dis-

covered for curing trees of the oak fungus disease. Replanting can be undertaken provided the old decaying roots are dug out by making a large hole, filling in the hole with fresh soil from a distance and in that way giving the new tree a fair start. The mold which you find at the base of other trees may be killed by digging away the soil so as to uncover the root crown and the top of the main roots, and allowing the excavation to dry thoroughly before refilling. Spraying with the Bordeaux mixture would also be desirable.

The cavities of which you speak on your almond trunks can be cleaned out with a carpenter's gonge and filled with cement as you propose. Too much free oil may not be good for fruit tree bark, but good lead and oil paint, thick enough not to run, is as good an application as any to apply to amputations or bark wounds.

Alfalfa and Apricots.

[By OUR ASSOCIATE EDITOR.]

Because a thing is not generally done is often considered a proof that it cannot be done. That is the way it is with growing alfalfa in orchards: it is very rarely that the two go together, and most people think it is unwise or unprofitable to have anything but clean cultivation for fruit trees. It is very easy to do a lot of damage to trees by alfalfa, but when one man makes a success of it under normal conditions, it is good proof that another man in normal conditions could do the same, and everywhere you go you can find somebody who is making a success of the proposition.

Down on the Stevens Creek road, just out of

alfalfa was put in. That was three years ago.

There was not the rain to bring it up, and irrigation was used. The soil just there was heavy and caked, so to keep it soft the water was turned on frequently until the alfalfa was well established. Probably it was this liberal irrigation that helped, for instead of having the small crop that was expected, there was as large a crop from the land as the year before, in spite of cutting out half the trees, and the trees have borne as well as other varieties of apricots ever since. This spring, also, they are budding out nicely and show no signs of failing.

On the other half of the block, where as many trees had been removed, the trees went accord-



Old Apricots With Alfalfa Cover Crop.

San Jose, F. R. Shafter has been growing alfalfa in his apricot orchard for several years, and has not only had a good thing out of his alfalfa, but made more from his fruit than before. It is a nice, deep, rich soil, and of course there is a well to provide all the water that is desired, although there is a lift of 80 feet when the pump is going, and lots of people think it unprofitable to pump half that height for alfalfa.

Beginnings.—The start was, of course, in the need for alfalfa for the farm stock. It is a great fruit country, we all know, and there is no surplus of hay for the stock. A small piece of land in front of the house was first planted to alfalfa, about eight years ago, and did well. Then some hogs were raised every year, and for feed a half acre was cut up into three pens and planted out. Being a heresy to put alfalfa between trees, these pens were put behind the barns, where few people would know of the failure, provided that the trees were killed. They not only were not killed, but a horse has not been on the ground since, and although the alfalfa is nearly used up, the trees are in fine shape and have borne up to all requirements every year.

Step number three was to make it a regular orchard proposition, and in order not to risk too much, it was tried on half a block of Moorpark apricots. These the preceding year had borne a full crop, and, according to the tradition, would not bear the following year. Half of them were cut out, leaving about 64 trees to the acre, and

ing to tradition and bore hardly at all. The next spring, therefore, they went into alfalfa and likewise have been doing well ever since.

Operation.—One noticeable thing about the method of operation is the fact that lots of water is used. Naturally, it has to be for the double crop, but water is applied winter and summer if the need is seen. Some was put on last December, for instance. Growth also starts early in the year, and on March 7 there was quite a growth and a very uniform one. Part of the alfalfa was getting a generous application of water, and although Mr. Shafter stated that the first cutting usually was about the last of March or the first of April, it looked as if it would come well before that this year.

There is, however, a cutting lost about harvest time, as the alfalfa has to be cut whether it is ready or not before picking and the water kept off until the picking is over. There is no record of yield, as a large part is cut and fed green as needed to several cows kept on the place. The stand is thick up close to the trees, and evidently the crops are good. Probably the trees would do as well with good irrigation without the alfalfa, but having the alfalfa saves cultivation, which makes the alfalfa harvested cost very little.

Peach Root Borer.—Another interesting saving is in the peach root borer. The year after the alfalfa in the hog-pens was started, the search for borers around the crown of the trees was made as usual, and from the 68 trees one borer

was found. From the very first tree outside of the alfalfa, Mr. Shafter states that 68 borers were taken. This is a big saving in expense, as well as a great thing for the trees, as no work has been done against the borers in alfalfa orchard since; neither has injury from borers been apparent.

Prunes.—Alfalfa is grown only among apricot trees, as the long picking season for prunes in which the alfalfa would suffer from water, the difficulty of harvesting prunes in the alfalfa, the injury to prunes which would strike alfalfa stalks in falling, all appear to make alfalfa with this fruit undesirable, though a few small growers seem to be satisfied with the plan.

Still, alfalfa did so well with the apricots that it was thought that irrigation might permit another crop to be grown among prunes. There was one block of 10 acres of prunes that was in bad

shape, and grain hay was raised on that. This did no harm, as the stubble could be worked in before the prunes started to fall, and irrigation for this has given good crops of hay and left the trees, once nearly down and out, in fairly good condition.

Thus far nothing has been done to return to the soil what the double drain of fruit and alfalfa hay removes, simply because no injury to alfalfa or trees has been seen. The manure from the animals that eat the alfalfa goes, not to the alfalfa orchard, but to the cultivated orchard. Theoretically this is wrong; possibly, also, fertilization would more than pay for itself; but when fertilization is needed it will be used. Meanwhile, the nitrogen taken from the air by the alfalfa apparently benefits both alfalfa and trees, and after it has served its purpose in the animals, goes to still other trees that need it more.

Right and Wrong Cultivation.

[Written for the PACIFIC RURAL PRESS by
J. W. PARSONS.]

Many of our California orchardists do not seem to understand the scientific principles governing the proper methods for the conservation of soil-moisture through our long hot summers, although most of them do cultivate the soil with considerable care according to their understanding of the conditions. Two things are aimed at by plowing and cultivating:

First Object of Cultivation.—The primary reason for plowing is to break up the crust, which includes the turning under of the plant food that may be on top of the ground so that it may decay and be incorporated with the soil and be placed within reach of the roots of the trees. This food may be artificial fertilizers, or common farm manure, or green vegetation. The plowing should be delayed until the green stuff, whether planted or volunteer, has had time to grow as much as possible, so as to afford as large a mass of green manure as practicable. And yet the plowing should be done in time to allow the plant food to decay before it is dried up by the sun and wind of the warm season. Many good careful farmers have made the mistake of plowing early and stirring the soil all the winter, so as not to allow the weeds to grow at all, and have prided themselves on what they call "clean culture." This method robs the soil of much valuable and needed material, and if kept up a few years, the vegetable substances in the soil become burned out by the sun, and the trees are starved, having only raw, lifeless, undigested mineral matter for food. This green vegetation, whether it is weeds, barley, or some of the legumes, is Nature's laboratory making food out of the air, sunshine, rain, and soil, and digesting it so as to make it readily assimilated by the trees. This is what is commonly called humus and cannot be too highly valued. It requires the greatest care to provide and maintain this humus in the dry climate of California. But the all-important element is water, which absorbs and holds in solution this plant food and passes into the circulatory system of the trees like the blood in animals and is carried to the leaves and acted on as is the blood in the lungs of animals before it can be used by the trees in the forming of tissue in leaf, bud, and fruit. Without water, this process is impossible, and the trees suffer, deteriorate, and eventually die. Our hot, dry summers are very exhaustive of soil-moisture, the sun pumping the water out of the ground all the season unless checked by the farmer.

Second Object of Cultivation.—The next and greater reason for cultivation is to keep the water deposited by the winter rains or irrigation, and hold it for the use of the trees when it is most needed. The time of greatest need is in the hot summer, when the trees are developing their fruit, making new wood, and forming fruit buds for the following year. It is vitally important that the trees should have enough sap, and that means water, to supply the materials to store up food in and around the buds that are to make the blossoms and leaves for the next spring. The blooming season is the most critical time of the year, for there is no sap to draw upon then to

maintain the life of the new blossoms; for the process of making nourishing sap cannot begin until the new leaves have made a start. Therefore, during the first few days until the sap is ready, the blossoms are as dependent on the food stored up in the past season to keep them alive, as is the day-old chicken dependent on the yolk that it absorbs just before hatching to keep it alive until it can eat and digest food for itself. So, then, it is evident that water is imperatively needed at the time of the ripening of the buds, which is about the time the fruit attains its full size and just before the leaves begin to fall.

There is a constant struggle going on between the farmer and the hot summer sun, and he must keep up the fight as long as possible. Right here is where many orchardists make a serious mistake. They harrow and cultivate the ground a few times until the soil seems in a pretty mellow condition, and the spring rains being over, and there being no crust in sight, and the weeds having been cleaned out, the farmer sees no need of stirring the ground, and so with a final scratch of the ground in April, it may be, or perhaps early in May, he turns his horses out to pasture and takes a vacation at the seashore for the month of June, feeling that all is well. Some extra thorough farmers make matters worse by running a heavy drag over the ground, leveling it and smoothing down the lumps so it looks as though it had been "ironed," as the ladies say. "It makes it so much easier to pick up the fruit and brings the moisture to the surface," the self-satisfied farmer says. "Just look at the moisture," he says, as he scrapes the surface with his foot. "Isn't that nice and moist, just where the roots can get at it?" Yes, that's it; it does bring the moisture just where the sun can get at it and warm it into steam and pump it out through hair-like tubes in the crust which has been packed by the drag. Every particle of water drawn out this way makes it easier for the next particle to follow, until there is an easy path for the water to pass up to the dry air that is ready to absorb it and carry it off. Perhaps the farmer knows enough to run a light harrow over the ground once or twice, so as to stop this and leave a light mulch on top that will prevent this leakage of water. This is good as far as it goes, but it ought to be kept up as long as possible, or until harvest where practicable. When the branches bend down with the fruit, and props are being placed to support the branches, of course it is impossible to drive a team through the orchard. But even then, it is sometimes practicable to drive a single horse, carefully dodging in and out between the branches and thus give the ground one more stirring. The reason for this persistence lies in the fact that the ground is constantly settling. The changes of temperature from day to night cause an expansion and contraction of the particles of soil which, going on every day, with the force of gravity constantly pulling the grains to lower levels, is one factor at work in the settling process. The dews and fogs of summer dissolve the surface and gradually run it together with a light crust that may be imperceptible, but in time will, with the help of the other forces at work, develop minute cracks through which the water can work its way up-

ward under the law of capillary attraction. The wind, too, has no small part in this process, sweeping over the ground, driving the dust hither and thither.

This protective mulch need not be more than four or five inches deep, for that is enough in most cases to conserve the soil-moisture. To go deeper would tear up too much soil and unnecessarily waste its moisture and humus. Sometimes early plowing is done nearly a foot deep, which leaves the soil feeling very soft and spongy, much to the loss of valuable ingredients. In such cases the soil should be firmed by heavy dragging to be followed by cultivation to make the required depth of mulch.

A well cultivated orchard will pass through the summer in better condition, provided it has the proper amount of moisture to begin with, than one that has been irrigated and allowed to lose most of its water by failure to thoroughly cultivate afterward.

These scientific principles have been demonstrated by practical experience, resulting in larger crops and better fruit in orchards that have had this extra and late cultivation.

Campbell.

FROST ON EUCALYPTUS AND ACACIA TREES.

To the Editor: Since starting my garden, two and a half years ago, until the night of January 5-6, the lowest of a carefully kept series of thermometer readings was 35°. On the night of January 5-6 the reading was 28°, on that of January 6-7 26°, and on the following night 31°. The readings differed slightly from those of the Weather Bureau, but this can be accounted for by the fact that my garden is 290 feet above sea-level. I may add that the thermometer is a good recording one, and has been carefully checked by the side of a standard thermometer without showing appreciable variations.

My garden is a little less than an acre in extent, and contains over 260 eucalyptus trees, the following varieties being represented: *E. globulus*, *E. corynocalyx*, *E. rostrata*, *E. sieberiana*, *E. robusta*, *E. stuartiana*, *E. citraodora*, *E. polyanthema*, *E. callophylla*, *E. cornuta*, *E. rudis*, *E. longifolia*, and *E. ficifolia*. The trees are from two to three years old, and range from four to thirty-five feet in height.

The *ficifolias* suffered most; some of the small trees appear to be killed outright—anyway to the roots, while much of the wood and all the leaves of the bigger ones are withered. The *corynocalyx* lost their leaves and young wood, but are now, a month later, shooting out again. The *callophyllas* lost their young leaves and tender shoots, as did the small *sieberianas*; the big *sieberianas* only lost a few very tender shoots. The *rostratas* lost a few leaves, but no wood; the rest of the family were unhurt. The *E. citraodora* is supposed to be a tender tree, and it should be stated that the one in my collection, though unhurt, was sheltered to some extent by a *rostrata*.

Of the *acacias*, several small *pycnanthas* were killed, and the larger ones lost many leaves and some wood; the rest of the *acacias*, including *A. floribunda*, *A. baileyana*, *A. latifolia*, *A. cultiriformis*, *A. melanoxylon*, *A. lophantha*, *A. dealbeta*, and *A. linifolia*, were unhurt.

It is worthy of note that the eucalyptus trees on three sides of the garden, north, east and west, seem to have saved the few citrus trees, none of which, with the exception of a *ponderosa* lemon that lost a few leaves and some newly formed fruit, was injured.

F. H. MASON.

San Diego.

GOPHERS IN ALFALFA.

Here is a little gopher record, which anybody is welcome to better if he can. It happened down near San Jose on a large fruit ranch. On the ranch there are four acres of alfalfa, grown for the stock. One year the pump was not working well, and the irrigation was not done systematically enough to do much execution among the gophers. The next spring it was fixed properly (that was just about a year ago), and the gophers had to get out on the levees in a hurry, where they were killed with a shovel and by a dog.

There were as many of them that in a day or

so it was seen that they had better be put under ground, and a man was sent out with a couple of buckets to gather them up. Not until the ninth bucket was filled was the job completed, and to get a line on their number, a bucketful was counted, there being 80 gophers therein, a total of 720 gophers for four acres, 180 gophers per acre, besides those that were drowned in the alfalfa and the few that escaped. The amount that they would destroy in a year would go quite a distance on the farm.

And, by the way, there is nothing like having a dog that likes the work of killing gophers—a terrier of some kind, preferably. A spaniel is kept on the place, and, like all dogs, he is real pleased to have a little gopher killing. However, the work soon palls on him when the gophers are too easy to catch, and he goes off and leaves the irrigator to do all the killing. Therefore, if a man is going to irrigate much alfalfa and thinks of getting a family dog, it is a good thing to consider the gophers in making his selection of a breed.

SPECIAL INSTRUCTION IN GRAFTING AND BUDDING.

Many inquiries have been received for information as to grafting and budding. To meet these requests the University Farm School, at Davis, will give three days' special work in grafting and budding, March 25 to 27, inclusive. There will be one lecture in the morning and in the afternoon of each day, on principles and methods, followed by three hours of practice in the nursery and orchard, as follows:

Tuesday, March 25, 1 p.m., "Principles of Budding and Grafting."

Wednesday, March 26, 8 a.m., "Grafting of Stone and Pome Fruits"; 1 p.m., "Conservation of Moisture in Orchards."

Thursday, March 27, 8 a.m., "Budding and Grafting Walnuts"; 1 p.m., "Budding and Grafting Citrus Fruits."

The work will be under the direction of Professors Clarke and Coit, and Messrs. Taylor and Rogers. This course is open to any citizen of California. Persons attending should bring with them a grafting knife and should notify in advance H. E. Van Norman, Vice-Director and Dean of the University Farm School, Davis, Cal.

BARRIER FOR CANKER WORMS.

A fully effective barrier for canker worms or other insects that crawl from the ground up the trunk of the tree to the leaves and fruit can be made from wire netting, such as used in fly-screens. A strip of this, four to six inches wide, is wrapped around the trunk of the tree. It is tied only at the top and a little cloth or similar material put under it so that there will be no cracks or openings through which the worms can crawl. The lower part of the strip is bent out from the trunk so that there is a big space under which the insects can gather; also, the wire is so far out that there is no danger of the insects reaching the end and crawling up.

When a worm starts to crawl up he keeps on the trunk until he reaches the wire, and then he wanders around in the cage instead of walking down the wire to the edge and crawling up the outside. The wire has the advantage over absorbent cotton and sticky substances in that it is durable and does not need attention.

HORSE BEANS FOR THE ORCHARD.

For a secondary crop in orchard work there are few things that in suitable location will be better than the horse bean. They do best when planted early, as they are a vigorous winter grower, though if planted now they would probably come out all right. Naturally, it is rarely advisable to plant them among trees unless irrigation is practised.

Horse beans are among the heaviest producing crops that could be grown, and being nitrogen gatherers, are good for the soil. They can be planted in every third furrow and will be out of the way before the fruit is ready to be picked. The beans themselves are an excellent hog feed, especially where a lot of the feed would be cull fruit and waste, rather than alfalfa or skim-milk. Some people who raise them feed the whole plant, including the beans, to the horses. Several cases are known, however, where horses so fed have died suddenly from no apparent cause, and a number of fruit men are afraid to use the crop in this way. Sometimes about two tons of beans can be secured per acre without apparent injury to the trees.

foreheads for lack of rain, where irrigation is not practiced, our range men may be feeling even less pleasant, grain and hay growers may be facing worse conditions by far than in the last two years, but our dairymen see snow on the mountains get high prices and wear the smile that won't come off. Unless conditions are deceitful, alfalfa is going to be worth lots of money this summer and fall. You can't seem to down a good cow.

Cold Storage Eggs.—If eggs are dairy produce, and dairy produce is livestock, eggs ought to belong here. The poultrymen are in lots of trouble, of which weather is the least, and there are many advisors as to the way out of the woods. One is figuring that there are only 240,000,000 eggs produced in California per year, and if the reporter has it right, that there is only one egg every four days per person. We won't go through with the arithmetic. However, San Francisco gets as many as that, or did in 1912, and still more arrived in 1913. If country folks had no better appetites than San Franciscans there would be about four times as many produced and, it is to be hoped, eaten. Still, that is far from the three eggs for breakfast, to say nothing of what goes into pastry, that some people easily get outside of and it looks as if something could be done to make the egg appetite grow.

Over in Berkeley, some college professors, some seasons back, were telling their neighbors how cheap, fresh eggs could be put up in water glass and cases galore were used by people who wanted to use such sage advice to solve the high cost of living. Now some poultrymen are thinking of keeping eggs until they get their price and storing them if they don't. Better advertise fine, fresh eggs, with receipt for safe inexpensive preserving, shipped direct and let the customers do the storing. Then the customers will use eggs galore for cooking in winter to celebrate their wisdom in putting up eggs in spring, and they will also eat fresh eggs then because they will think that their saving earned them. That is one way to beat the egg a day per person record, to market direct and to help out the community.

Speaking about dairy produce, it is a funny thing, but while butter is going up, cheese is staying down. Perhaps butter is a way better bet than cheese after all, but markets are too hard a thing to figure at the best.

Market for Pure Breds.—The market for pure bred is not the same thing at all, but it is a problem after all. The superintendent of advanced registry of the Holstein-Friesian Association has got the right idea for broadening the market for bulls of his breed. Only one good bull in ten can be used in pure bred herds, the others have to go to head grade herds, the rank and file of dairy population. The black and white are so persistent that lots of black and white cows are called Holsteins although they may have little Holstein blood and be poor milkers. He wants some prizes for milk production to be given in State and other fairs to go to grade cows only. That would give every dairyman a chance, every cow a chance, and it would further demonstrate what good cows of mixed breeding could do, and one of the best things, it would show the benefit of using good pure bred bulls on common cows. There ought to be no lack of market for any good bull, or other good sire, and by showing merit this would make a better market.

An Australian Plan.—There is one good idea that they have in New South Wales to get dairymen to use good bulls. The government buys fine pure bred animals and everyone who has confidence in the Department of Agriculture knows that the bulls are what they should be. These bulls are rented to dairymen at the rate of £15 per year, about \$60. There is in this way no in-breeding, and a good bull can be passed along until he is past his prime, at which time he can be sold to a small dairyman, if so desired, where there will not be many cows to serve. That is better any day than sending a good bull to the block after two years service, better by far than keeping a scrub bull, and the expense to government is practically nothing, to dairyman very little over what a scrub bull might cost. Here in America we don't want a paternal government, voluntary co-operative organizations have shown great efficiency, and co-operation (community breeding) could do just as good a job as that. The plan is worth following.

Live Stock Notes and Comments

[By Our ASSOCIATE EDITOR.]

Not in California.—If a person read the article last week by W. M. Carruthers on the Livestock Situation in the East, and it is to be hoped everyone did, he must have been struck with the fact that the producer had the whip hand in the markets and was using it. The Breeders Gazette and the market dailies of Chicago are commenting editorially on the matter and consider it of great interest. That will not occur in California, our market practices don't permit and will not until a radical change is made. The situation is just this, the packers have got to have supplies, the increase of population and decrease of stock has made it sure that there will be no over-supply under any conditions, the stockman knows daily just what prices are being offered and ships or holds accordingly. The packers have to come to terms and pay a fair price, one that will enable them to do a good business with the retailer.

The reason why this can be done is due entirely to the Stock Yards. The market is known absolutely by actual sales at the yards, unlike California, it is not made by prices paid out in the country and figured on the basis of what said stock would cost delivered. That price is made by sales by experts who have wide information as to market conditions, it is not made by persons who have stock to sell only occasionally and have only unreliable second-hand information to work upon. Other things enter in, but the difference between sales in the country, based on unreliable information, made but rarely, and sales made at the ground, by experts with extensive and accurate information have much to do with it. In the one case the stockman has not facts enough at his command to know when to ship or to hold, and

selling or holding would do but little good anyway. In the other case the stockman has the latest information and definite information and an expert to look after his sales when he does ship. This is saying neither pro nor con for the proposed southern stockyards, but it is at least an intimation that well established stockyards in the governing market of the State might change matters a good deal.

Portland Comparisons.—This suggests a little comparison that developed recently. An item came in of a sale of a lot of steers here in California at seven cents a pound, and the correspondent was much pleased at the price. The very next thing coming to hand was the price of stock for a recent week at the Portland Stockyards, and behold! they ran away over that seven cents. Now, the difference is not due especially to stockyards, but to the fact that cattle from the Northwest are almost always corn finished, or barley finished, and sell better, wholesale and retail than grass finished cattle. There is not the slightest reason why Portland should be a better market than San Francisco, neither does it draw upon such an extensive and productive a territory. Still, territory naturally belonging to San Francisco ships to Portland. More corn and better finished beef, mutton and pork would do lots for local markets, and, in spite of opposition from interested quarters, Union Stockyards would put on the other kind of finishing touches.

Dairy Markets.—The market for dairy produce is performing funny stunts nowadays. Not long since butter, instead of going down, as usual at this time of year, started to climb away up. We are far and away above Eastern markets. Our fruit men may be having furrows form on their

Little Stories About Big Things.

[Written for the PACIFIC RURAL PRESS by
W. M. CARRUTHERS.]

Helpful Hints to the Sheep Man.

Ear Tagging.—Some pure bred flock masters experience difficulty in keeping the young lambs properly marked so they can be readily told which dam they belong to. Of course some people imagine they can tell just which lambs belong to different ewes, but to depend upon this very long after the lamb is born is a very uncertain custom to practice. The cartilage of a lamb's ear until it is quite well grown is not very strong and if a tag should be put there the ear is apt to become sore or form improperly. The use of tags for real young lambs should not be recommended nor should any one depend upon remembering where every lamb belongs. The safe and sure method is to punch small notches in the youngsters ears and then when they become old enough the tags can be correctly inserted where they will usually stay and cause no bad results to the ear. The ordinary ear punch can be used for this purpose. Any intelligent breeder can easily adopt a system of marks, the meaning of which can be easily followed by any ordinary man. Should the numbers on the ear tag not run up very high, the same number could be notched in the ear as the tag to be inserted later. If the flock is a large one a record should be kept of the numbers in order that no mistakes will be made. For instance: Suppose this year's lambs should be marked from tag 500 the lamb notched 1 would require tag 500; 2 would require 501 and so on. Under this method there would be no conflict in starting each year's lamb flock with notch 1 as in the fall they would be ear-tagged and nothing in the flock but the lambs would be without tags. This system of notching is very beneficial when older sheep loose their ear tags because these notches will identify them. Suppose a three-year-old ewe lost her ear tag, you could get her notch number and age, then look up the ear tag number of such a notch that year. That would enable one to get the correct duplicate tag. It is the belief of the writer that if a system of this kind could be adapted by all pure bred breeders that a great deal of the annoyance and trouble of keeping track of ear tags, etc., would be done away with. Suppose for instance a breeder wanted to number a lamb 253, a hole through the middle of the right ear would stand for the number 2; a lower notch next to the head in the same ear would stand for the number 5, and a notch in the tip of the left ear would stand for the number 3. This is a very simple mode of marking and when it is thoroughly installed into the mind of the breeder it can easily be remembered. These marks will never wear out and will last just as long as the animal lives. They will never do any harm and injure the ears of any young lamb.

Dipping.—As soon as practical, say when the ewes are shorn and before the lambs are weaned, they should all be dipped. To destroy the ticks entirely, dipping should be repeated again in the fall. The object of dipping is to destroy the parasites in the fleece, to kill off any young insects which may afterwards hatch out and to protect the sheep from subsequent attacks. Experience has taught that sheep thrive much better when their skin is clean and it has been clearly proved that a good dip increases the quantity and improves the quality of the wool. It is absolutely impossible for lambs infected with ticks or other parasites to thrive properly owing to the constant irritation they suffer. In trying to get relief, lambs often nibble at the fleece and swallow small particles of wool which usually proves fatal. Thorough and regular dipping of the entire flock is money well spent. The modes of dipping are various. For small flocks the hand-bath is generally used, but the swim bath is by far the best for large flocks. This system gives much less trouble, saves labor and expense and the operation is far more effective.

Helpful Hints for the Hereford Man.

The fact that four of the country's largest packers are Hereford cattle breeders should not

be unnoticed by other Hereford breeders. That these four men admire the Whitefaces to the extent that they own and breed them, is not merely a coincident. There must have been some very good reason back of their determination to breed Herefords. That their decision was influenced by practical results seen through their packing houses cannot be doubted.

The Armours at Kansas City have been breeding Hereford for twenty years, the herd being established by K. B. Armour, and maintained after his death by his brother, C. W. Armour. Jack Cudahy, a son of the founder of the Cudahy Packing Co., and for many years a manager of one of the Cudahy houses, owns one of the best registered herds in the country. He is well known as one of the most enthusiastic Hereford breeders in the business. He is a man of wealth and large affairs, but he gives more time and attention to his Herefords than to any other part of his business. Swift & Co. own the Shoe Bar ranch in Texas, and produce several thousand head of Herefords every year. Nels Morris, the packer, at one time owned one of the largest herds of black cattle, but that herd has been dispersed, and his son now handles Whitefaces as largely as possible for grazing on their Dakota ranches.

It would seem that the Herefords are coming to their own again. At the Iowa State Fair there was made one of the most magnificent displays of Hereford cattle that has ever appeared on this continent, and the big Denver show, which has just closed, was fully equal to it in the exhibit of breeding animals and far exceeded it in some other respects. The Herefords captured the Denver show with every championship awarded to that breed and every price record on the bull, cow, steer, or carload of steers, carried away by the Whitefaces. In the sale at public auction of breeding Herefords the average of 48 head was \$399.37, which is equivalent to saying a \$400.00 average in round numbers. Hereford feeding cattle sold at the Denver show for \$12.25 per hundred, and fat carload Herefords reached the \$10.00 mark. Evidently the mountain states are soon to make the corn belt states realize that there is something doing in beef production.

Helpful Hints to the Hog Man.

The problem of breeding, feeding and developing hogs in California is one of no small importance. Our environment, climate and feeds are entirely different from those of Eastern hog raisers. To follow their methods in this State is usually disastrous from a financial standpoint.

Several weeks ago the writer had an interesting conversation with Mr. S. B. Wright of Santa Rosa (one of the most successful hog men in the State), regarding methods of hog feeding. Several years ago it was the general opinion of most beginners, and some who were already in the business, that the alfalfa crop in its many feed conditions could develop and finish hogs both from the breeders standpoint and the standpoint of the block. Mr. Wright determined if this process of developing and feeding hogs was a success, the problem of finishing hogs in this State was solved. He had at that time thirty registered Berkshire sows of the best type, and one of the very best boars of America with them. He divided them into lots and fed nothing but alfalfa hay and alfalfa meal for a period of seven or eight months with the result that he had the poorest season he ever experienced in twenty years as a breeder of Berkshires. His litters were as large as usual, but half of the pigs were born dead and the other half were so mushy and weak that they never developed into anything that he could sell as registered animals. He claims that you can maintain a drove of brood sows when they are matured on alfalfa most of the time, but they must have some grain six weeks before they farrow and must be fed grain during the period they are raising their pigs.

His usual method now followed is to feed rolled barley soaked in skim milk; the morning feed is prepared twelve hours before it is fed and the evening meal handled in the same way.

Feeding in this manner sometimes causes the

brood sows to get a little too fat, but it is an easy matter to cut down the ration. This mode of feeding accomplishes one thing in hog production if no other good should come from it; that is the raising and developing of the whole litter instead of the half.

If this end of the game of hog production was handled with care and better management, there would be a third more hogs produced in California every year, as there is not one farm in ten that raises more than half of the pigs that are born on the ranch. Much of this loss is from poor methods of feeding.

Uri Wood Co. of Los Banos who are large raisers of hogs on alfalfa say, that pigs must be fed grain and milk until they are four months old before they are turned out on alfalfa to hustle for themselves and even then if they are fed a little grain it will pay very well. If this method is practiced it will be found that these hogs will grow right along developing bone and muscle. When they are taken up to finish for the market, not having been started on a bulky ration the first few months of their lives, they will respond very quickly to grain feeding and make bigger and better gains than alfalfa hogs that never saw any grain in the earlier part of their lives.

On large ranges, well supplied with black oak, good hogs can be raised for the market without using much grain. Black acorns and grass make a fine ration for fattening and developing hogs and if the drove is not too large, good profits usually come from this method of handling. In the fall of the year when the grass is gone and nothing is fed as a substitute for green feed so that the hogs get nothing but acorns they usually become very fat. If this should happen it is often well to dispose of the whole band for pork as the breeding qualities of the sows have been more or less impaired, a new start usually will prove more profitable than to use the old fat sows the following season for the purpose of producing pigs.

AN EXAMPLE OF TESTING.

A peculiar example of the differences that are shown in cows when their milk is tested for butter fat was narrated by a visitor the other day. A farmer in the Northwest had three cows. One was a full blooded Jersey, the second a grade Jersey, the third a scrub cow of no certain breeding. It was thought that the latter was not worth keeping, for when her milk was set away for the cream to rise, no separator being used, the cream was much less thick than that of the other cows, also she was not a very good milker. The narrator tested the milk of all three cows and found out that the milk of the scrub was actually richer than that of the grade Jersey, while she was a better producer of butter fat than the pure bred animal. Ordinarily, of course, the cows of good breeding would out-produce the scrub, but you can't always tell and the only way to be sure is to weigh the milk and find out how rich it is.

The explanation of the fact that the cream was not so thick as that of either Jersey, although the milk was richer than that of the grade, lies in the nature of the milk from the different breeds. Jersey milk contains fat that is in large particles and when these particles gather together into a cream they hang together much more closely than small particles would do. Thus the cream from Jersey milk is much more leathery than the milk from other breeds. The Holstein milk lies at the other extreme, as the fat particles are very small and consequently the cream appears less rich than it really is. This fact combined with the fact that Holstein milk averages less rich than the milk of most other breeds tends to give the Holstein a poorer reputation as a fat producer than the breed deserves unless the pay check proves the contrary.

The Department of Agriculture announces that the losses by fires in the National Forests for the year 1912 were the lowest of recent years, the total damage being estimated at \$75,290, or less than one dollar for every 2,000 acres of area. This good record is attributed to favorable weather conditions in most localities and the increased efficiency of the fire-fighting organization.

Lime as a Fertilizer.

[By Our Associate Editor.]

There are two basic reasons for the use of lime as a fertilizer. One is to overcome acidity, sour soils. The other is to make the soil less disagreeable. For the latter, a heavy soil that is hard to work, that will run together, may be greatly benefited by the application of lime.

There is one way to be perfectly sure that the application of ordinary lime is entirely unnecessary. That is to take a little of the soil and put a drop of some acid upon it. If bubbles come off, it has all the lime that is needed. Vinegar can be used for this if no other acid is available. Possibly the bubbles may not form and yet the soil have enough lime.

To be perfectly sure that lime is needed one can put a little blue litmus paper in a ball of wet soil for a half hour or so, and if it turns at all pinkish, lime is needed. Possibly also it might not turn color and yet be needed. This is especially true of heavy soils, where lime often would do much good mechanically even though the ground was not sour. Yet these are the two methods, one for being sure that lime is not needed, the other for being sure that it is, and there is quite a little margin between.

THE WAY TO GET IT.—The most common and available form of lime is caustic lime, the ordinary commercial material. It is the most concentrated form that could be obtained, but a person could do much better financially if he went about it right than to use this.

Back East the standard way of getting lime for the soil is to get the ground limestone. There is a regular business in supplying this, and all the standard papers there carry quite a few advertisements for this. That is because Eastern soils very commonly need lime, and its use is almost universally of great benefit. Such lime can be furnished delivered in car lots for \$2 per ton and less, containing enough lime to make burned limestone worth only about \$3.55 per ton. However, here in California limestone formations, for one thing, are few, and for another thing the lime companies have neither the equipment for supplying ground limestone nor the trade that would justify making such prices, and it is doubtful if they could supply ground limestone at any price.

However, there are different ways of getting cheap lime, if one will go about it. There is frequently a lot of burned lime that has to be thrown out for one reason or another at the limekilns, and it would be queer if a person would write to a big lime company or fertilizer company for special rates on car lots of waste lime and not get a big reduction over regular charges for ordinary building lime. Such lime would have to be "picked up" lots and could not be considered a steady source of supply if a very heavy demand was made for it.

Likewise, some kind of manufacturing calls for the use of lime. The carbon dioxide works, from whence comes the wind in the soda water, have a small amount of lime that only a year ago usually went to same thing; all are correct.) Thus if a person paid \$14 for a ton of quicklime, which is not far from the usual price in a country town, he would get just the same amounts of lime by paying \$7.85 for air-slacked lime and \$4.75 for gypsum. These figures will be a guide for comparative prices.

However, he could afford to pay more than this for both the air-slacked lime and the gypsum, for he would save lots of trouble in preparing quicklime for use, and the gypsum has much more valuable properties than just the lime in it.

To prepare quicklime for agricultural uses, it has to be exposed to the air and spread out so that the air can get to it all over, until it crumbles to a powder before it is safe to use it. It has to be come fully air slacked, and this takes a long time. Then, as said before, it is per-waste, but now is in such demand that prices have steadily been rising.

CAUTION.—The words "Care in Use" ought to be written over every lot of burned lime to be used as fertilizer in as striking form as the word "Poison" on medicine bottles. A man can do all sorts of damage to his soil by using burned lime improperly on his soil, as he can do good by using it properly.

Burned lime will burn up every bit of vegetable matter in the soil that it touches and valuable vegetable matter. Like fire, it is a fine servant, but a poor master. Easterners have figured that one ton of burned lime applied at once to an ordinary Eastern soil will destroy as much fertilizing material as is found in nine tons of barnyard manure. This fact has made the proverb that "All lime and no manure makes the fathers rich and the children poor." The full evil result is not seen for some time. Properly treated lime, on the other hand, has no injurious effect whatever, and the first part of the proverb shows that it has the habit of bringing riches.

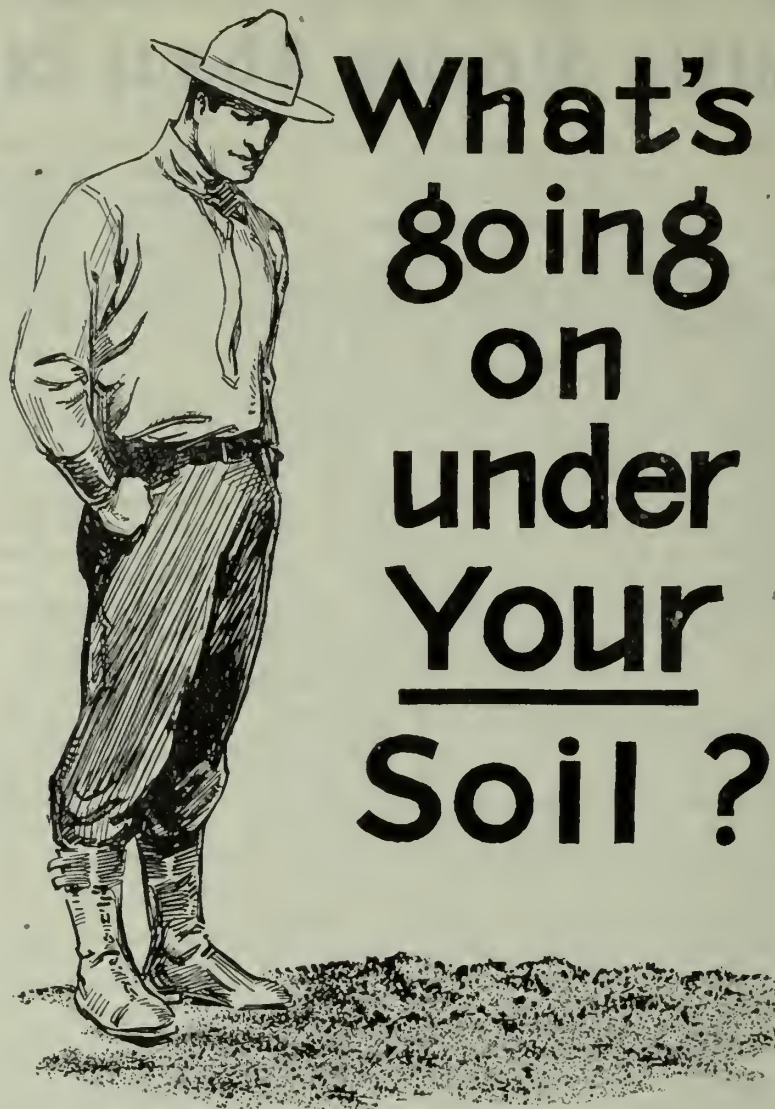
The loss in plant food is limited entirely to nitrogen, which is the most expensive kind of plant food there is to purchase. The lime does not really destroy the nitrogen or the vegetable matter at all; it simply works upon the vegetable matter so vigorously that the nitrogen in it is changed into ammonia and passes off in the air. If it passed off into the ground it would be another proposition altogether, for the nitrogen would have to be ammonia some time, and ammonia is in very nearly the shape that plants want. It is just doing good work, but doing it too rapidly. Air-slacked lime does the same work, but does it so slowly that the plants get the use of the nitrogen instead of losing the use. Water-slacked lime works less rapidly than straight burned lime, but still faster than it should, and thus does a lot of injury.

FORMS AND PRICES.—There is a big difference in the amount of lime one would get in the different forms and the prices one would have to pay for the different forms. In 100 pounds of air-slacked lime there is but enough material to make but 56 pounds of quicklime; or we might put it that 56 pounds of quicklime, after air-slacking, would weigh 100 pounds; 1200 pounds of quicklime would make more than a ton of air-slacked lime; three tons of the one more than five tons of the other.

Gypsum is still a third form and has a different material joined with it than any of the others. Pure gypsum contains only about one-third the lime in quicklime. (Excuse the use of the terms, quick, caustic, and burned lime for the factly safe to use it, and where needed it will do lots of good.)

GYP-SUM.—The subject of gypsum is most interesting, also misunderstood. Gypsum has uses that other lime has not, and is useless for one very important thing that lime is needed for.

Like lime, it is a big help to many heavy soils. Unlike lime, it is absolutely useless in overcoming acidity or sourness in soils. We often hear people say, "Gypsum is part lime, so it is good for sour soils." The very reason it does not overcome acid is that every particle of acid that can hang on to lime is already hung on to it in gypsum, and it is good strong acid, too, stronger than the lime itself, and the lime has no strength left over



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to use on other acid in the soil. Therefore, a person is completely mistaken in saying that gypsum is good to overcome sour soils.

Where the gypsum is strong, and where lime is absolutely ineffective, is in tackling black alkali. Black alkali is very hard on the soil, hard on plants, hard on everything, and grips the soil like grim death to boot. Put gypsum on the black alkali, and it remains black alkali no longer, but white alkali, less injurious to soil, to vegetation, and very much easier washed out. Half as much again gypsum is needed as there is black alkali present at the least, and in practice twice as much and then more for good measure.

Gypsum also is much more of a soil stimulant than ordinary lime. The latter is good in a safe, sane and conservative way. The latter is uproariously good. It gets action, and although not a genuine plant food itself, gets the other genuine plant foods that had been sleeping well waked up and stirring around so that the roots pick them up and put them where they will do the most good. The bacteria also with one accord start after their food with renewed appetites and every plant that has bacteria working on its roots gets a lot more working when the gypsum starts bossing the job. The plant foods themselves applied as fertilizer, often will hardly do the work that gypsum will, for the time being.

However, not being food, gypsum tends to exhaust the soil. Superphosphate contains gypsum, and does therefore the same work as the gypsum, in milder action and yet permanently enriches it at the same time. Until actual exhaustion is seen in the soil there would be no use in getting scared of exhaustion, but it would always be wise to try other lime on part of the land, and some genuine plant food also. By this means refertilization could be much longer postponed and the ultimate cost probably much less.

All these forms of lime are good to try when either soil or crops do not thrive. A person can see some wonderful cures of gummosis in orange trees by liberal applications of lime, especially gypsum around the crown and through the rest of the ground, and every place the soil is bad the lime is likely to do good.

But it should always be remembered, that ordinary lime is not needed when vinegar will make the soil bubble, although gypsum may do lots of good even then, that gypsum will do but little of any good when the soil is sour, and that ordinary lime will do lots of good, any kind of lime is a benefit to a heavy, refractory soil that will not send out bubbles, that quicklime has to be fully slacked before using, that excessive irrigation often means a need for lime (this was treated of before) and that there is great difference in the amount of lime secured according to the form in which it comes.

SETTLERS WE WANT.

To the Editor: Enclosed please find check for \$5 for subscription to your valuable paper, also for copy of California Fruits.

I am very much interested in these since I came from a country (South Hungary) that agriculturally is much like California, also having lived several years in Smyrna, Asia Minor. I intend to sell my business, also my farm of 60 acres near this city with the intention of settling in your state and growing fruit, therefore would like to be informed of everything that may be of interest and benefit to me.

To confess, I really intended to come out there about 25 years ago, but finan-

cially was not in a position to do so. At present I am 50 years old, have two sons, 23 and 25 years of age, also my daughter and wife, all enthusiastic for farming.

I raise a little of everything on my farm here, but fruit and poultry is my aim, and to admit have quite a little knowledge about fruit in general, and the tropical fruit of your State is nothing new to me, except in the difference between the methods of cultivation in Asia and in your State. Anything that you may be able to add to this way through your paper will be highly appreciated. I can also interest a few families of the same opinion as myself to settle out there if the prospect is at all encouraging.—M. Latzko, Plainfield, N. J.

[With the capital, the experience, the family and the enthusiasm, the prospect is encouraging, all right, and the change would be good for both the State and her new citizens. The more such that come the better, and there is no better preparation for coming than to absorb all possible information from the RURAL PRESS, California Fruits and California Vegetables.—EDITOR.]

AGRICULTURAL WASTE?

"Waste on the farms totals a sum almost unthinkable in its magnitude. It is true that under present conditions much of the waste cannot be helped. But a gold eagle lost through a hole in the pocket is as much of a loss as one deliberately tossed into the sea. The remedy would be to locate the hole and sew it up," says the Wall-Street Journal. "Not long ago the agricultural commissioner of the Rock Island system published the statement that cornstalks made into ensilage were worth 60 per cent of the value of the grain, and that by wasting their stalks the farmers were losing \$1,000,000,000 a year. It would not be necessary to look further if one were after an illustration of agricultural suicide. But another instance can be seen in the present wasteful system of ginning and baling cotton, together costing the planters an unnecessary \$10 a bale, which on the crop of 1912 would aggregate at least \$135,000,000. Many good farmers have their seed plots and cross-fertilize their seed plants with the care shown by a breeder of rare horses. But the majority shovel their seed from the bin at planting time, sell the large potatoes and plant the little culls. Applying to the crops of 1912 merely the difference in yield estimated by the Department of Agriculture between the use of heavyweight and lightweight seed, this would make a difference of \$750,000,000. The Department of Agriculture is sponsor for the statement that 1,000,000 tons of tow could be saved from the flax straw that is now burned. In the surplus grain states, also, after threshing the straw is burned to get rid of it; \$70,000,000 gone up in smoke!"

[One trouble with exportation of this kind is that they do not figure the labor cost of saving the stuff. This is often greater than the value of the material saved.—EDITOR.]

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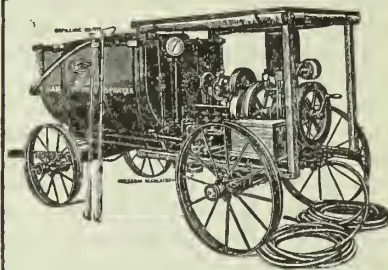
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to use on other acid in the soil. Therefore, a person is completely mistaken in saying that gypsum is good to overcome sour soils.

Where the gypsum is strong, and where lime is absolutely ineffective, is in tackling black alkali. Black alkali is very hard on the soil, hard on plants, hard on everything, and grips the soil like grim death to boot. Put gypsum on the black alkali, and it remains black alkali no longer, but white alkali, less injurious to soil, to vegetation, and very much easier washed out. Half as much again gypsum is needed as there is black alkali present at the least, and in practice twice as much and then more for good measure.

Gypsum also is much more of a soil stimulant than ordinary lime. The latter is good in a safe, sane and conservative way. The latter is uproariously good. It gets action, and although not a genuine plant food itself, gets the other genuine plant foods that had been sleeping well waked up and stirring around so that the roots pick them up and put them where they will do the most good. The bacteria also with one accord start after their food with renewed appetites and every plant that has bacteria working on its roots gets a lot more working when the gypsum starts bossing the job. The plant foods themselves applied as fertilizer, often will hardly do the work that gypsum will, for the time being.

However, not being food, gypsum tends to exhaust the soil. Superphosphate contains gypsum, and does therefore the same work as the gypsum, in milder action and yet permanently enriches it at the same time. Until actual exhaustion is seen in the soil there would be no use in getting scared of exhaustion, but it would always be wise to try other lime on part of the land, and some genuine plant food also. By this means refertilization could be much longer postponed and the ultimate cost probably much less.

All these forms of lime are good to try when either soil or crops do not thrive. A person can see some wonderful cures of gummosis in orange trees by liberal applications of lime, especially gypsum around the crown and through the rest of the ground, and every place the soil is bad the lime is likely to do good.

But it should always be remembered, that ordinary lime is not needed when vinegar will make the soil bubble, although gypsum may do lots of good even then, that gypsum will do but little of any good when the soil is sour, and that ordinary lime will do lots of good, any kind of lime is a benefit to a heavy, refractory soil that will not send out bubbles, that quicklime has to be fully slacked before using, that excessive irrigation often means a need for lime (this was treated of before) and that there is great difference in the amount of lime secured according to the form in which it comes.

SETTLERS WE WANT.

To the Editor: Enclosed please find check for \$5 for subscription to your valuable paper, also for copy of California Fruits.

I am very much interested in these since I came from a country (South Hungary) that agriculturally is much like California, also having lived several years in Smyrna, Asia Minor. I intend to sell my business, also my farm of 60 acres near this city with the intention of settling in your state and growing fruit, therefore would like to be informed of everything that may be of interest and benefit to me.

To confess, I really intended to come out there about 25 years ago, but finan-

cially was not in a position to do so. At present I am 50 years old, have two sons, 23 and 25 years of age, also my daughter and wife, all enthusiastic for farming.

I raise a little of everything on my farm here, but fruit and poultry is my aim, and to admit have quite a little knowledge about fruit in general, and the tropical fruit of your State is nothing new to me, except in the difference between the methods of cultivation in Asia and in your State. Anything that you may be able to add to this way through your paper will be highly appreciated. I can also interest a few families of the same opinion as myself to settle out there if the prospect is at all encouraging.—M. Latzko, Plainfield, N. J.

[With the capital, the experience, the family and the enthusiasm, the prospect is encouraging, all right, and the change would be good for both the State and her new citizens. The more such that come the better, and there is no better preparation for coming than to absorb all possible information from the RURAL PRESS, California Fruits and California Vegetables.—EDITOR.]

AGRICULTURAL WASTE?

"Waste on the farms totals a sum almost unthinkable in its magnitude. It is true that under present conditions much of the waste cannot be helped. But a gold eagle lost through a hole in the pocket is as much of a loss as one deliberately tossed into the sea. The remedy would be to locate the hole and sew it up," says the Wall-Street Journal. "Not long ago the agricultural commissioner of the Rock Island system published the statement that cornstalks made into ensilage were worth 60 per cent of the value of the grain, and that by wasting their stalks the farmers were losing \$1,000,000,000 a year. It would not be necessary to look further if one were after an illustration of agricultural suicide. But another instance can be seen in the present wasteful system of ginning and baling cotton, together costing the planters an unnecessary \$10 a bale, which on the crop of 1912 would aggregate at least \$135,000,000. Many good farmers have their seed plots and cross-fertilize their seed plants with the care shown by a breeder of rare horses. But the majority shovel their seed from the bin at planting time, sell the large potatoes and plant the little culls. Applying to the crops of 1912 merely the difference in yield estimated by the Department of Agriculture between the use of heavyweight and lightweight seed, this would make a difference of \$750,000,000. The Department of Agriculture is sponsor for the statement that 1,000,000 tons of tow could be saved from the flax straw that is now burned. In the surplus grain states, also, after threshing the straw is burned to get rid of it; \$70,000,000 gone up in smoke!"

[One trouble with exportation of this kind is that they do not figure the labor cost of saving the stuff. This is often greater than the value of the material saved.—EDITOR.]

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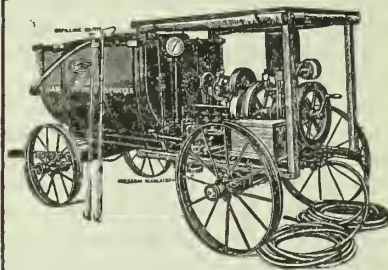
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THE CANNING OF APRICOTS IN CALIFORNIA.

[Graduating thesis of JUSTO P. ZAVALLA, University of California.]

California is one of the States where the cultivation of the apricot has great importance, exceeding that in the other States in the Union, because the soil and climatic conditions are well suited for growing apricots. This is the reason why my thesis will treat upon this industry.

During my vacations of the last semester I have been working in the Libby, McNeill & Libby cannery, at Sunnyvale, where I had the opportunity of observing the whole process of this industry. I think that this cannery is one of the biggest in the State of California, and for this reason I will give a full description of the different departments and how the work is done in each.

DEPARTMENTS.—1, Receiving room; 2, Preparation room; 3, Canning tables; 4, Syruping room; 5, Cooking room; 6, Warehouse.

RECEIVING ROOM.—This department has in charge all the things regarding the purchase of fruit. There are scales to weigh the fruit at the moment of receiving it. Besides this, there is a grader to classify the apricots according to the following grades: Extras, 2¼ inches in diameter; No. 1, 2 inches; No. 2, 1½ inches. In general, the fruit is bought by the ton and the prices paid depend upon the class to which it belongs. All the fruit which does not satisfy the foregoing requirements is returned to the seller. The fruit which has been spoiled is separated in piles. The good fruit is put in boxes, containing thirty pounds each, and is sent to the preparation room.

PREPARATION ROOM.—The preparation room has many tables, located parallel, leaving between them plenty of room to facilitate the passage of the workmen. Every table has six divisions on each side where the women or girls are working. The lower part of the tables has divisions where the boxes filled with apricots are placed. In the upper part of the tables are put empty boxes which are filled with the apricots, divided in two parts and classed as follows:

- 1, Specials.—This kind of apricot exceeds in size the common standard.
- 2, Good Fruit.—Ordinary size and in good condition of maturity.
- 3, Soft Fruit.—Has a degree of maturity between good fruit and "pie fruit."
- 4, Green Fruit.—Its state of maturity is incomplete.
- 5, Blemish Fruit.—This kind of fruit shows in its skin traces of the work done by insects and crusts, due to the disease called gummosis.
- 6, Pie Fruit.—This fruit is over-ripened.

The best variety of apricots, chiefly used for canning purposes, was originated in France and is called Royal. The conditions underlying the stated classifications are the following: (1) amount of sugar which the syrup contains; (2) duration of the hot bath; (3) the quality of the fruit; (4) commercial classification.

In the preparation room there is installed a large grader which has five frames of different diameters. These frames have horizontal movements, allowing the fruit to drop down to traveling belts. The belts carry the fruit to the canning tables, which are located at right angles to the grader. The fruit classed by the grader must be just of one kind. For example, good fruit or blemished fruit is graded by itself, and two different kinds of fruit must never be put in the grader at the same time.

CANNING TABLES.—The work of this department is to fill the cans with apricots. The cans utilized by the cannery

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are of two different sizes: two pounds, and eight ounces. In order to distinguish the different kinds of apricots which are put in the cans, there is a combination of letter stamped on the bottom of the cans.

The canning tables have six divisions on each side. In the middle part of the tables there is a traveling belt which supplies each division with fruit. The entrance of the fruit to the divisions is regulated by means of a crosspiece. The belt is placed in a wooden gutter. At the end of each canning table there is an empty box into which is put the excess of fruit, which must be distributed to the other canning tables. The material of which they are made is wood, but at the same time it is not perfectly hygienic. This difficulty can be overcome by using canning tables made of iron and covered with porcelain. They will satisfy all the hygienic requirements and they will have long durability. All the canning tables are provided with pipes which carry plenty of water to wash the fruit when it is necessary.

SYRUPING ROOM.—When the cans have been filled with the desirable fruit they are carried to this department by means of trucks. Before filling the cans with syrup, it is very important that the marks on the bottom of the cans be observed, in order to add the right kind of syrup. The kind of syrup which must be added depends upon the kind of fruit already mentioned. The syrup is made in large tanks, which are in connection with the syruping machine, by the aid of pipes. The concentration of the syrup can be as follows: No. 1, 45% of sugar; No. 2, 30%; No. 3, 25%; No. 4, 10%; No. 5, none.

The last one is used with fruit of inferior quality. In general, the number of cans which can be filled by the syruping machine at the same time is about twelve of the two-pound size.

COOKING ROOM.—When the cans have been filled with syrup, they are carried to the cooking room. The cans have to pass through the exhaust box, where they receive a steam bath during five minutes at 180°F. This operation is important because of the following reasons:

1. To make a complete disinfection of the fruit. The temperature inside of the exhaust box (180°F.) is sufficient to destroy all kinds of germs which might originate fermentation and therefore cause damage to the products.

2. The operation expels the air, making a good vacuum. Otherwise, when the cans are put in the large tanks, containing water at 212°F., they can burst very easily, due to the pressure developed inside. On the other hand, the machinery used to close up the cans does its work automatically. This system of closing the cans has the following economic advantages: (1) Economy of hand labor. (2) It is unnecessary to bore the caps of the cans on its superior face to expel the air when the cans are in the hot bath. (This practice constitutes the old system.)

When the cans are closed they are put on trays holding 96 cans of 2 pounds, or 165 cans of 8 ounces, and are carried to the hot bath. This bath is performed by means of the machine called "Dickson Cooper," and without doubt it is the best machine discovered for that purpose. This machine is very simple. At one of its ends it has a combination of crenated wheels to regulate the speed of the trays which carry the cans into the boiling water. There are two rails to lead the hooks supporting the trays. The hooks are connected with a traveling belt, by means of which the trays are moved. At the end of the rails there are trucks to take away the cans which have been cooked. When the trays, carrying cans, have been put in motion they can follow

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two ways: (1) The lower one allows the cans to go through the tank, containing water at the boiling point. This is used when the fruits require a long bath (35 minutes); for instance, pears. (2) The upper one is utilized when the fruit requires a short bath (from 7 to 11 minutes). In general, the duration of the hot bath depends upon the condition of ripeness of the fruit. The best system to follow, in order to ascertain the duration of the hot bath, is to make a skilful examination of the fruit previous to canning. This is an important fact and

should be emphasized. We know that the degree of ripeness of the fruit varies with the methods of cultivation and with the time at which it is gathered. Therefore, it is a hard proposition to establish exact figures regarding the duration of the hot bath. Nevertheless, an example can give an idea:

Temp.	Kind of fruit.	Time, min.
212°F.	Good	9
212°F.	Green	12
212°F.	Soft	7
212°F.	Pie	35

(To be concluded.)

Mr. Pillsbury Calls Attention to Errors.

To the Editor: In your issue of March 1st I find two attempts to report my address delivered at Lodi on the 29d of February. Being a newspaper man I know something of the difficulties of reporting what is said in an address and doing it right and from observation, I know how next to impossible it is to do this when the reporter has assumed such an attitude of uncompromising hostility to what the speaker stands for as to make it practically impossible for such reporter to hear straight, see straight or think straight. Therefore I do not greatly blame Messrs. Robert G. Williams and George W. Ashley for getting down wrong much that I said. As the subject under discussion is of vast importance to the state I crave your favor for an opportunity to correct their misstatements in the reports referred to.

I did not, Mr. Williams, allude to compensation as being "the greatest movement in human history." What I did allude to as being the greatest fact in the economic history of the Aryan race, to which we belong, is that for the first time in thousands of years, there is no longer any frontier beyond which lie new lands to be had for the taking, new commonwealths to be erected and empires established; that by reason of the termination here where we live and during our time, of the great westward movement that crossed Asia, Europe and this continent, life will never again be to the Aryan race what it has been during all its past history. The safety valve which has provided against the restlessness and over crowding of the people of the North Temperate Zone for thousands of years has been fastened down and sealed up for all time. Therefore the situation of the land owner has been changed for all time, and not one person in the hundred who does not inherit real estate will ever own more than his six feet of earth, or have a habitation that he can call his own until he passes under the lowly lintel of the narrow house in which he rests his bones.

The depreciation of the value of the average California farm, by reason of the one per cent compensation cost of insurance, will be \$178.90 and not \$168.30, as you have it. The average cost of labor per farm was \$894.24 as reported by fifty-one thousand farmers, Californians themselves, and not \$923.00 as you have it. I stated "this small item will never be noticed" in the light of the fact that the pressure of sustenance upon the land has made the farms of California worth seven per cent more each year than they were worth the previous year, ever since 1900. You forgot to mention that it was in face of that fact that I said that the reduction of the rental value of a farm from \$820.38 to \$811.43 never would be missed.

I did not say that if the farmers were excepted out of the compensation provisions of our act they would still be "in such relation to compensation liability" that they would be worse off. If they were excepted out of compensation they would be in no relation to compensation liability but they would sustain a very close relation to liability in damages based upon negligence; and I did say that insurance coverage under liability for damages based upon negligence would cost more than insurance coverage for compensation under our act, and I challenge any insurance man, or any other citizen to prove to the contrary.

I did not say that the farmers would be compelled by the forces of labor to remain under the compensation provisions of the act. What I did say was that if the farmers were to ask to be excepted out of the compensation provisions of our act and have restored to them the old common

law defenses that are under sentence of death in all the civilized nations of the world and whose sentence has been carried out in practically all of Europe, excepting Turkey and Portugal, and in twenty-two states in the American Union—then and in that case the hand of every man would be against the farmer as being reactionary and un pitying and that this thing can no more be done in California than the planters of the South can re-enslave their black farm hands.

Just a word as to Doctor Freidensburg: if Mr. Williams will read the second paragraph on page 60 he will get Doctor Freidensburg's point of view where he says, on the basis of his service of more than twenty years on the governing board:

"I have sought to set forth the operation of our workingmen's insurance, not as it might appear to the superficial observer as its juristic, economical or political foe, or even as the blind fool who fails to recognize that the blessings of this insurance cannot be adequately described even by the usual phrases of unconditional laudation, but I have been faithful to the concept that justice should not be subordinate to mere kindly feelings, and I have written in the hope that I might render even now some aid, even though it be but small, to this great achievement to which I once devoted myself with joy and with enthusiasm."

Does that look as though Doctor Freidensburg regarded the German system as a failure? Finally, on page 62, Doctor Freidensburg says:

"It is only to avoid all suspicion of cowardice that I state it once again: workingmen's insurance can be truly beneficial in its operation only when free from all exaggeration and excess, and especially from conscious or unconscious subservience to the lower classes, it works as an institution of the state as impartial as every other kindred institution."

Dr. Freidensburg thinks it does not so work out. As Dr. Zahn says of him, "he is the advocate of the abnormal," and is more concerned for the failures of the hundredth man than for the successful operation of the law as regards the ninety and nine. Any man who will read Doctor Freidensburg's pamphlet without a mind prejudiced beyond measure will find him a friend to compensation and not an enemy, yet much concerned for some small abuses that have grown up under it and which have to do with German political life, and not California.

My respects to Mr. Ashley: Unless a man can view this subject broadly he cannot view it at all. This issue is not one between master and servant, or employer and employee. The issue is one of the preservation of the state and the nation against the third greatest peril confronting it, inasmuch as poverty is the only serious peril that confronts any civilization, and industrial accident has heretofore proven the third greatest cause of poverty in the world. The world has tried the negligence theory for more than a century and has pronounced it a failure. It does not meet the requirements of the problem. As I explained to you, not above five per cent of the cases of negligence are so culpable in character as to warrant mulcting the employer in damages or depriving the injured person of recompense for his injury. Therefore, society has said to each industry, "You must take care of your own killed and wounded for our social protection," and the only place to care for it is where the accident happens and when it happens. Requiring this is

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not confiscation. Compensation laws say to the employer, "We will relieve you from the burden of having to pay the full measure of damage sustained through your negligence, or that of persons for whom you are responsible, in those cases where you or they are negligent, and in place of that responsibility we shall limitedly make you responsible for all injuries, no matter how they happen, so they do not happen by the willful misconduct of the person injured." To the employees the state says, "We shall deprive you of the right to sue to be made whole for all the damages that you have sustained through industrial accident by reason of the negligence of another, but in its place we give you a right to a modified compensation to tide you over your period of adversity, no matter how the accident happen." This no more confiscates the property of the employer than it confiscates the right of the employee to sue for the recovery of full damages. It is not an issue between employer and employee. It is a statesmanlike effort to relieve society, to that extent, from man's primal and most serious curse, poverty.

I did not forget, as Mr. Ashley implies, that this becomes an individual matter with the employer when the employer fails to insure, but so does his loss from fire when he fails to insure his barn or his home. If he chooses to bear that burden alone after the state has placed insurance within his reach at a cost not exceeding one per cent of his payroll, he has himself to thank for his folly and no one to blame, just as he has himself to thank if his barn burns up and he has no insurance upon it or its contents.

I did say in the Lodi paper that the outside figure for compensation insurance for farmers might be \$1.25. I did say in my Lodi address that there was no

reason why it should be more than \$1.00. The explanation of this seeming discrepancy is this: that between the time when the letter to the Lodi paper was written and the time when the Lodi address was made our actuary had revised his figures and warned me that there was no sense in using the higher estimate, as there could be no justification for raising the farmers' rate above \$1.00.

I wish to call Mr. Williams' attention to his unwarranted statement that "rates elsewhere on agriculture are not lower than \$2.00." That is simply not true, and as I explained in that address, the rates in New Zealand are 60c on the hundred dollars, in Great Britain from 50c to 85c, and in Germany under \$1.00. The only case where the rate is \$2.00 is in Austria where compensation applies only to men who are handling such dangerous farm machinery as mowers, reapers, corn shredders and threshers, and as to those men, the rate is made commensurate with the rate for men who are handling other forms of dangerous machinery, but that rate does not apply to farm labor in general.

The provisions on page 22 for "taking care of lawyers' fees" is put there to safeguard employers and employees against extortionate fees to be charged by lawyers who, by the way, will be very seldom needed at all under compensation. The provisions on page 30, for freeing the members of the Industrial Accident Board from personal liability does not cover their misdeeds, but does not make them personal parties to the insurance contracts which they will have to make, and exempts their private means from seizure for any deficiency which may exist in the state fund. This provision is usual in all such insurance acts and without it few men would dare to serve the public in such a capacity.

A right of review by a court of justice as to the facts in any controversy over compensation would be tantamount to a denial of justice to the hurt man and in no country in the world where compensation obtains are the questions of fact determined by courts as courts. Where the judges of courts determine such controversies they do it as referees or arbitrators and not with the mechanism of justice as applied to other controversies. The wheels of justice would be blocked if it were otherwise.

Speaking for the farmers, Mr. Ashley says that he feels that if one, through lapse of memory or flight of imagination, is hurt in one of the hundred and one ways of being hurt that are open to carelessness, the farmer should be exempted, believing that society in general should make good. Mr. Ashley has not said how the farmer proposes that society in general shall make good. I presume, however, from reading between the lines of what he has written from time to time, that he thinks a favorable way of making good is to send the hurt people to the poor house. Again, Mr. Ashley, this is not an issue between the employee and his employer. It is an issue between the state and the industries of the state, and the employing farmer can avoid the issue being personal to himself by the simple method of insuring under compensation at not to exceed one per cent of his payroll, or a cost upon the average California farm based upon reports made by the farmers themselves to the United States Census Bureau, of \$8.94 per farm. The man who neglects to protect himself so adequately at so low a cost is too heedless of his own welfare to deserve commiseration, whatever befalls him.

This communication is, I fear, exasperatingly long, but it unfortunately happens that careless reporting can make more misstatements of fact in a single page than can be corrected in half a dozen.

A. J. PILLSBURY.

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DEMING THE WORLD'S BEST PUMPS

An ideal high pressure power sprayer, with utility engine, agitator, 200-gal. solution tank, hose, nozzles. Complete, ready for operation.

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best in design, workmanship and materials. Purchase price cheerfully refunded if not satisfactory or found as represented.

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503 Market St., San Francisco.

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ALSO GENUINE FRANQUETTE WALNUTS.

All stock grafted on California Black.

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Red Astrachan
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Baldwin
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Delicious
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A post card will bring you our price list and descriptive Catalogue. Your order will bring you these trees, freight prepaid, and if given proper care and cultivation, they will bring you an income that will bring you to the sunny side of Easy Street.

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HORSE MANURE AS A FERTILIZER

Highly recommended by the U. S. Department of Agriculture, Washington, D. C. Write to them and ask for Farmers' Bulletin No. 192, "Barnyard Manure." When you want manure, write us and we will quote you.

PACIFIC MANURE & FERTILIZER CO.,

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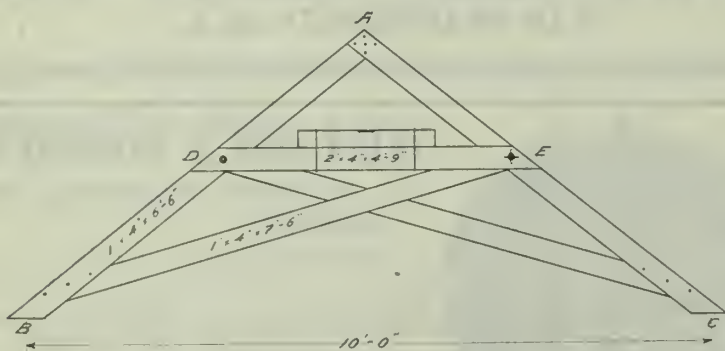
Laying Out Land for Alfalfa.

To the Editor: Can you give me a plan where I can lay out land and ditches for alfalfa with a common level?—A Subscriber, Galt.

ANSWER BY F. W. KERNS, SAN FRANCISCO.

To run level or grade lines with the aid of a carpenter's level, construct a light stiff frame like the sketch, to which the carpenter's level may be firmly attached. If it is desired to run per cent gradients, that is, a certain fall in 100 feet, which is the method employed by surveyors, the length of the base of the triangle, BC, should be 10 feet. This is the only dimension that need be exact; using the dimensions shown on the sketch, will give a triangle about 4 feet high, a convenient height for use in the field.

The two legs, AB and AC, and the two stiffeners, DC and EB, should be nailed together so as to make a rigid frame. The piece of two by four, DE, should be attached to the frame by a bolt at one end, and by a bolt passing through a slot cut in DE at the other, so that one end of DE may be raised or lowered and clamped tightly by a thumb nut when the triangle is properly adjusted.



Carpenter's Level and Frame for Laying Off Alfalfa.

To run a level line, the adjustment consists in making the bubble tube of the level parallel to the line of the base, BC. This can be done regardless of whether the level itself is adjustment or not; the only precaution to be observed regarding the level is that the bubble be sensitive, that is, it should move back and forth quickly when one end of the level is raised and lowered slightly.

To make this adjustment, drive two pegs, 10 feet apart, until their tops are about level. With the level securely attached to DE and as nearly parallel to the line of the base BC as can be judged, rest the ends of the triangle on the pegs. Raise or lower one end of DE by means of the thumb nut until the bubble is in the center, the adjustment is complete; if not, bring the bubble halfway to the center by means of the thumb nut, and bring it the balance of the way by driving the proper peg. Reverse the triangle on the pegs again, so it is in the original position, and if the adjustment has been carefully made, the bubble will remain in the center, the tops of the pegs are level, and the triangle is ready for use on a level line. If the pegs were considerably out of level, or if the level and line of the base were considerably out of parallel, it may be necessary to reverse two or three times, bringing the bubble halfway to the center by the thumb nut and the balance of the way by driving the proper peg each time.

A level line such as a contour check levee, can best be run by driving pegs at 10 foot intervals and levelling them up with the aid of the triangle.

To run a grade line, assume the desired fall which is one and one quarter inches in 100 feet. This gives a fall of one eighth of an inch in 10 feet, the length of the base of the triangle. A

small strip of wood, one eighth of an inch thick, is accordingly placed on top of one of the adjusting pegs, and one end of the triangle, say B, is held on top of the strip, the other end held on top of the other peg, and the bubble brought to the center by the thumb nut.

If the lower end of the ditch has been determined upon, and it is desired to run the grade line toward the higher end, a small peg is driven flush with the ground at the lower end. The end C, of the triangle, which should be marked to avoid confusion, is placed upon the peg and the triangle swung around, keeping the bubble in the center, until the other end, B, strikes the ground, where another peg should be driven so that the bubble remains in the center when the triangle rests on the two pegs. The end C is then rested upon the second peg, and the proper point for a third peg is located as before, the end B being always kept in advance in the direction in which the line is being run, and the end C kept behind.

If a head gate, point of diversion, or other consideration fixes the upper end of the ditch, so it must be run from the

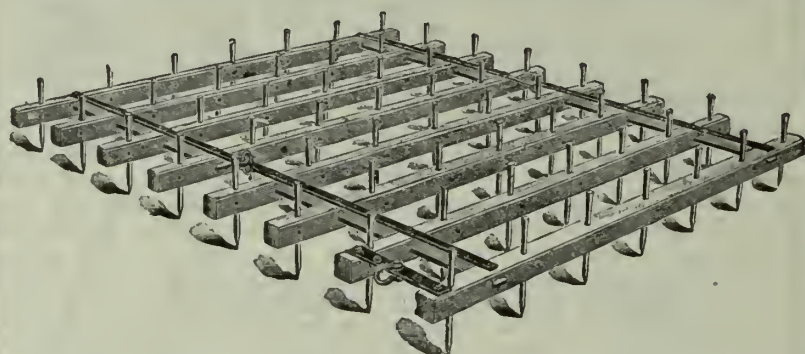
upper end toward the lower end, the end B is placed on the first peg and the end C is kept in advance.

It is not necessary that the line of pegs be located so that they are all just flush with the surface of the ground, as the cut or fill can always be determined by measuring from the tops of the pegs. By allowing a little cut or fill, long bends can be frequently avoided, and short and direct lines run. Neither is it necessary that a farm ditch be located with exactly the same gradient throughout, for the velocity of the water varies as the square root of the gradient, that is, other conditions being the same, if the grade of a ditch is quadrupled, the velocity of the water is only doubled. Therefore, if a little leeway is allowed in the size of a ditch, its grade may be varied somewhat without changing in size, and it will still carry sufficient water. Small changes in the grade may thus be made and obviate awkward bends or cuts and fills.

If it is desired to run lines having a certain fall per rod, a larger triangle may be made, so as the length of the base is 16½ feet; the thickness of the strip placed on the adjusting peg should then be the fall of the line in a rod. The larger triangle is more unwieldy, but fewer pegs are required on a line and more rapid progress can be made.

The triangle should be adjusted each time before it is used and if used continuously, it should be adjusted every morning. If the adjusting pegs are left undisturbed after the first careful adjustment, subsequent adjustments can be made quickly by using the thumb nut only, to bring the bubble to the center; it is always well however, to reverse the triangle on the pegs occasionally, to be sure they remain level. When adjusting the triangle or using it in the field, it

Benicia Spike Tooth Wood Bar Harrow



Above illustration shows the BENICIA SPIKE TOOTH WOOD BAR HARROW with Draw Bar Celvis.

These Harrows are made in all sizes, from thirty-one to one hundred teeth each. The bars of the frame are made of TOUGH OAK of high grade, size 2¾x2¾ inches, with corners at ends neatly rounded. Teeth in these Harrows are of a high grade of steel, and will stand a large amount of strain and abuse.

A 5/16 inch diameter carriage bolt is put through the bars close to each and every tooth, and prevents the possibility of the bar splitting.

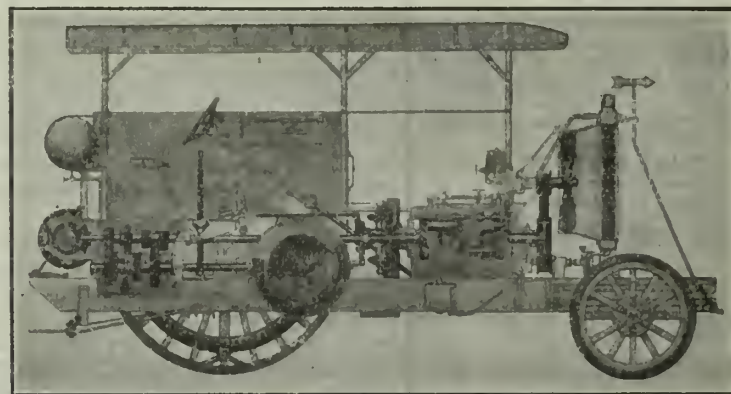
The hinges are of what is known as the flexible pattern, and allow each section to have an independent vertical motion of several inches. All sections are coupled together without the use of bolts or pins. BENICIA HARROWS are neatly finished and varnished. There is no better appearing and more efficient Wood Bar Harrow on the market than the "BENICIA."

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Are You A Real Up-To-The-Minute Business Farmer?

or are you sticking to the traditions of your forefathers and using muscle instead of brain? Brain in farming means using the most modern and economical implements obtainable. And speaking of economy, don't confuse an investment with an expenditure. What kind of power do you use? Let us tell you about the

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You feed it only when it's working. And when it does eat its appetite is small. Write us today and we'll tell you why and how the Ajax is the most economical power obtainable. It is fully guaranteed.

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SAN FRANCISCO

should be kept in as nearly a vertical plane as possible. If the bubble moves back and forth when the triangle is held on the adjusting pegs and swayed slightly from side to side, one end of the level should be moved toward one side of the triangle, at right angles to its plane, and the other end of the level toward the other side.

The accuracy of running levels by this

method cannot be relied upon much closer than 3 feet per mile, so that if a long ditch or a flat gradient is necessary, it will be advisable to employ a surveyor.

The following table gives the fall in feet per mile and the per cent gradient, for thicknesses of strips used on the adjusting peg from one sixteenth to three eighths of an inch, for both a 10 foot and 16½ foot triangle.

Thickness of strip in inches.....	1/16	1/8	3/16	1/4	5/16	3/8
10-foot base:						
Fall in feet per mile.....	2.75	5.5	8.25	11.0	13.75	16.5
Per cent gradient.....	.05	.10	.16	.21	.26	.31
16½-foot base:						
Fall in feet per mile.....	1.67	3.33	5.00	6.66	8.33	10.0
Per cent gradient.....	.03	.06	.09	.13	.16	.19

Address of County Horticultural Commissioners.

Persons frequently wish to know whom they can get to come to their farm and give expert advice upon the control of insect pests or plant diseases on the ground or to advise methods of culture when the trees are going back. The law provides for an officer in every county where sufficient fruit growers so request and in all but one or two of the counties of especial agricultural importance these officers are employed to be of service to land owners in the county. They likewise frequently have deputies, or inspectors, who may be more conveniently reached than the commissioner himself in certain outlying districts, and a letter addressed to the County Horticultural Commissioner, with a request for advice and inspection of trees or plants, should bring prompt reply. There is no charge therefor.

The following is a list of Commissioners, together with the postoffice address. Their names will always be found in the telephone book and many have offices in the courthouse.

Alameda—Fred Seulberger, Oakland.
Butte—Earle Mills, Oroville.
Colusa, L. R. Boedefeld, Colusa.
Contra Costa—Frank T. Swett, Martinez.
Eldorado—J. E. Hassler, Placerville.
Fresno—F. C. Schell, Fresno.
Glenn—Carl Ley, Willows.
Humboldt—George B. Weatherby, Eureka.
Imperial—W. E. Wilsie, El Centro.
Inyo—Richard Baird, Bishop.
Kern—K. S. Knowlton, Bakersfield.
Kings—B. V. Sharp, Hanford.
Lake—G. A. Lyons, Lakeport.
Lassen—R. N. Jones, Susanville.
Los Angeles—Wm. Wood, Los Angeles.
Madera—Geo. Marchbank, Madera.
Mendocino—J. R. Banks, Ukiah.
Merced—N. H. Wilson, Merced.
Monterey—J. B. Hickman, Aromas.
Napa—A. D. Butler, Napa.
Nevada—D. F. Norton, Grass Valley.
Orange—Roy K. Bishop, Santa Ana.
Placer—H. H. Bowman, Bowman.
Riverside—R. P. Cundiff, Riverside.

Sacramento—F. R. Bloomer, Sacramento.
San Benito—L. H. Day, Hollister.
San Bernardino—S. A. Pease, San Bernardino.
San Diego—H. A. Weinland, San Diego.
San Joaquin—Wm. Garden, Stockton.
Santa Barbara—C. W. Beers, Santa Barbara.
Santa Clara—Earl Morris, San Jose.
Santa Cruz—W. H. Volck, Watsonville.
Shasta—Geo. A. Lamiman, Redding.
Siskiyou—Joseph F. Wetzel, Yreka.
Solano—C. R. McBride, Vacaville.
Sonoma—A. R. Galloway, Santa Rosa.
Stanislaus—A. L. Rutheford, Modesto.
Sutter—H. P. Stabler, Yuba City.
Tehama—Chas. B. Weeks, Red Bluff.
Tulare—A. G. Schulz, Porterville.
Ventura—R. S. Vaile, Santa Paula.
Yolo—Geo. H. Hecke, Woodland.
Yuba—Geo. W. Harney, Marysville.

CONDENSED MILK IN PERU.

The stimulation of traffic around the Pacific is likely to extend the demand for Pacific Coast condensed milk, but of course in that line we have to compete with the world.

Vice-consul Louis G. Dreyfus, Jr., reports from Callao that during 1910, the last year for which accurate statistics are available, it appears that Peru imported preserved milk of all classes to the total value of \$45,515. It is impossible to ascertain the exact amounts that are brought out from several countries that supply this article, but the names of these countries are as follows, the same being given, as near as can be estimated, in order of their importance: Switzerland, Belgium, United States, Great Britain, Italy, France, Germany, Hongkong, Chile and Uruguay. Nearly all these countries sell to Peru, to a somewhat lesser extent, various classes of confectionery, the total Peruvian importation of such in 1910 amounting to \$42,163,

Ecuador, Spain and Panama also contribute to this latter trade, but their exports to Peru are not an important factor. It should be remembered in this connection that Peru manufactures confectionery, of both cheap and expensive grades, to a considerable extent, but there are no canning industries whatever in this country.

The prevailing retail price for the better grade of condensed milk is about 15 cents per can, and for the poorer grade (skimmed) about 10 cents. Evaporated milk retails at 12½ cents a can. The most popular brand of malted milk, it appears, is sold in one-pound tins for 58 cents, corresponding prices being asked for larger and smaller amounts.

STATE GRANGE SCHOLARSHIPS

The California State Grange has empowered its executive committee to establish one or more scholarships in the Agricultural Department of the University of California. These scholarships, to be known as "State Grange Scholarships," have an annual value of \$200, and are open to any fourth degree member. Any young man or woman desiring to obtain the same must apply to the secretary of the local Grange. Winners of these scholarships are eligible to apply for entrance to the four-year course in agriculture at Berkeley or the three-year course in agriculture at Davis. A "Prospectus of the College of Agriculture" of the University of California giving the course of study and requirements for admission may be obtained by addressing the Recorder of the Faculties, University of California, Berkeley, Cal.

A great eucalyptus planting has been arranged for west Orland in Tehama county. There are 6000 acres to be planted out. The American Eucalyptus Timber Corporation is the company promoting the work.

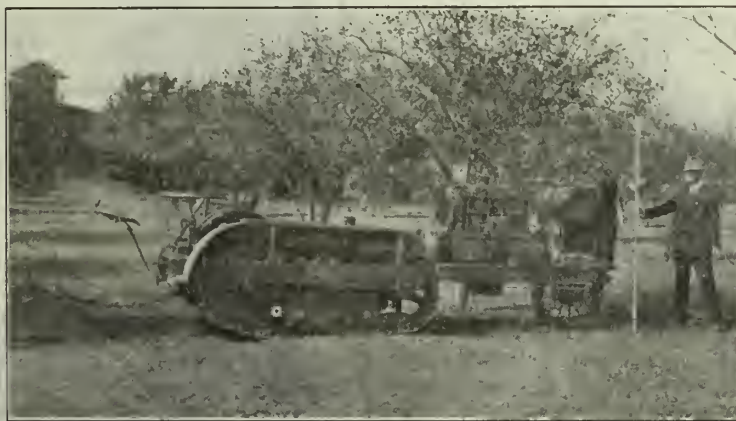
PLOW YOUR ORCHARD DEEPER AND CULTIVATE IT CHEAPER

You need a power that will work each and every day that work is necessary. One that is not subject to the vagaries of the weather or the condition of the ground.

Round wheel engines have always been weak in the point of traction. The chief objection to tractors has been that the wheels would slip and stick in the mud and lose traction on soft soil.

If you have a knowledge of tractors you KNOW this to be true.

Yet how many tractor manufacturers have made an earnest attempt to improve this greatest of all weaknesses?



Baby Caterpillar working in orchard. Turns in its own length.

Only one and the Caterpillar is the result of that successful effort. Round wheel engine manufacturers today base their claims for superiority on a new type of carburetor, a new valve in the motor or a new frame construction.

All tractors nowadays should have a good motor and a good frame.

If they haven't, the manufacturer is careless or too "economical."

Good motors can be bought by anyone in the open market.

The traction, the supreme weak point of the wheel engine, has been overlooked by them.

TURNS IN ITS OWN LENGTH.

CATERPILLAR

REG. U. S. PAT. OFF.

WILL NOT BARK THE TREES.

The Holt Manufacturing Company, Inc.
STOCKTON, CALIFORNIA

COUPON

The Holt Manufacturing Company, Inc.
Stockton, Cal.

Please send me literature describing the Caterpillar Gas Tractor and showing pictures of the machine in operation.

Name

Address

I farm..... acres of land.

Features of the Nevada Short Course.

[Written for the PACIFIC RURAL PRESS by
E. A. HOWES.]

At the two weeks short course in agriculture put on during the latter part of February by the University of Nevada, there were two outstanding features: (1) A demonstration of the tuberculin test followed by an autopsy as verification; (2) Fat stock judging, followed by a car-

cass demonstration. This does not mean that the remainder of the course was second-class matter; a study of the program will show that the whole course was a credit to the University; but the two numbers just mentioned were particularly striking and attracted most attention.

TUBERCULIN TEST.—As a demonstration of the efficiency of the tuberculin test this feature was unusually successful. It was under the management of Dr. W. B. Mack, college veterinarian, and he has every reason to feel pleased with the outcome. Despite the frequent proof of its value, the tuberculin test is often met by scepticism on the part of certain doubting Thomases among cattle men.

The explanation of this is probably to be found in the fact that the nature and significance of the process are not clearly understood; or it may be due to some faulty or careless performance of the test. It is claimed that certain animals, far gone in tuberculosis, will not react, and such exceptions may be seized upon to show a lack of certainty in any diagnosis of the test. Also the conductor of the test may have been careless in the matter of injecting only such animals as were known to be in normal condition at the time of the beginning of the test. Be the cause what it may, the fact remains that doubters are to be found everywhere; but any fair-minded man who followed the demonstration at Reno must have felt satisfied as to the reliability of the test.

Dr. Mack, in quest of material for the demonstration, had searched the country far and wide until he found a couple of cows that seemed to justify the belief that they would not be found wanting in the matter of reaction when the occasion should arise. One was in a rather poor condition, and the other was in a decidedly poorer condition; in fact, the latter animal appeared to be in the same class as David Harum's first horse—the only thing which proved it to be a cow was the fact that it was nothing else. The writer is only one of many who joked the veterinarian about selecting an animal that admitted of no possibility of failure in the matter of the test, so sure were we that this cow was just about on the threshold of dissolution from tuberculosis.

The animals were duly injected and temperatures were recorded at regular intervals. In the case of the first cow the temperature rose steadily, remained practically at the same height for a time, and then gradually dropped down—diagnostic of tuberculous affection. The cow that was literally skin and bone gave no reaction, and we naturally concluded that she was to furnish one of the cases just mentioned, one that was too far gone to react. The animals were killed and the carcasses were examined in the presence of a large crowd of people. In the first cow certain of the glands showed unmistakable evidence of partial progress of the disease, while other glands were practically nothing but masses of pus. All were satisfied that the test had proven its efficacy in this case, but we looked with more interest to the dissection of the second animal. It will be remembered that this one had not reacted. The closest inspection of the carcass failed to find any trace of tuberculosis, the emaciation being probably due to neglect, although there was some evidence of a liver trouble.

Could anything have shown better the reliability of the test? A sight inspection lead us to decide that the second cow was tuberculous; the tuberculin test declared otherwise, and the final analysis by autopsy justified the test. Thus was the

Hanford Nurseries

CLARKSTON, WASH.

TREES

That will Grow.
That are True to Label.
That are Free From Disease.

By arrangement with the Vineland Nurseries Company, we offer a limited number of

Red Gravenstein

Apple Trees for Fall Delivery.

See what Prof. E. H. Van Deman says of this wonderful new apple:

"For two years past I have seen the Red Gravenstein Apple at some of the fruit fairs in the West, and among them the National Apple Show at Spokane. I have also eaten it, and it is a true Gravenstein in every particular except color. In this respect it far surpasses the old variety, because it is almost solid red and exceedingly attractive. I think this difference will cause it to sell even better than the common Gravenstein, from which it is a bud-sport."

Hanford Nurseries

CLARKSTON, WASH.

Drawer 6. AGENTS WANTED



PERFORATED TREE PROTECTORS

TO CITRUS GROWERS, if the recent frost has caused the leaves on your young trees to drop so they will not protect the body from the hot sun, which will spoil a good many of them if not protected, let us supply you with wraps for them. Others are going to do it, why not you? You can't afford to let your trees go unprotected when for about a cent each you save all of them.

Also a word to you who are planting deciduous trees.

Last season we sold over a million Protectors to deciduous planters, and they find it was money well spent. You know that rabbits, hot sun, sand storms, raking of bark in cultivation, etc., always causes a loss that will many times more than pay for the Protectors to protect your whole planting. Let us sell you Protectors. We have the only Perforated ones made. Write for sample and price.

The Expan Protector Co.

935 Central Ave., Redlands, Cal.

PLANT GIANT WINTER RHUBARB TO YOUR ACREAGE.

\$2000 per acre can be made. PLANTS NOW READY FOR SHIPMENT; also BERRIES, SMALL FRUIT, CACTUS, ASPARAGUS, Etc.

Write for information.
J. B. WAGNER,
(The Rhubarb Specialist),
Pasadena, Cal.

TREES

A general line of Oranges, Lemons, Deciduous Nursery Stock, Roses, Shrubs, etc.

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Corner 3rd and Bush Sts., Santa Ana, Cal.

TRACTION ENGINE PLOWS

California Product.
Strongest, lightest Draft. Cheapest and best on market. 60 days guarantee.
S-R DISC PLOW CO., 62 Post St., San Francisco



It's Made in California

We have a tractor that's a real California product—made right here in this State; it's called the

Rumely ToeHold Tractor

Formerly known as the Johnston Tractor.

It's the best thing yet designed for the man who has orchards or vineyards. It's built like a racing model—low, turns short, goes up under the trees and close to them.

It's useful for any farmer—will do the work of any tractor—will go places and do things other tractors won't.

Why go out of the State to buy when you can get a California product that's better?

We have branches at San Francisco, Los Angeles, Portland and Spokane—they carry a complete stock of repair parts—no delay in case of accident.

Write for literature on this tractor and ask the name of our nearest dealer.



RUMELY PRODUCTS CO.

(Incorporated)

Power-Farming Machinery

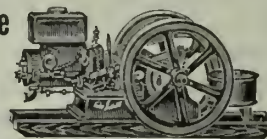
San Francisco, 75 Fremont St.
Los Angeles Portland Spokane Pocatello, or
LA PORTE, IND. (Home Office) 455

Waterloo-Boy Hopper-Cooled Gasoline Engine

1, 2, 4, 6, 8 and 12 HORSE-POWER

MATERIAL, WORKMANSHIP AND POWER ABSOLUTELY GUARANTEED

THE WATERLOO-BOY is positively the best engine for running machinery such as feed cutters, grinders, grindstones, cream separators, washing machines, churns, sheep-shearing machines, lathes, drill presses, pumps for irrigation purpose, etc., etc. Further information free on request.



FREE CATALOG—A catalog containing valuable information about stationary engines of every description, their design, construction, care and operation. This catalog tells you—shows you—in clear, easily understood and concise language, all about our line of superior gasoline and distillate engines. You will want this catalog if you are interested in windmills, tanks, pipe fittings, pumps, etc. Write for it today—NOW. Our money back guarantee is your protection.

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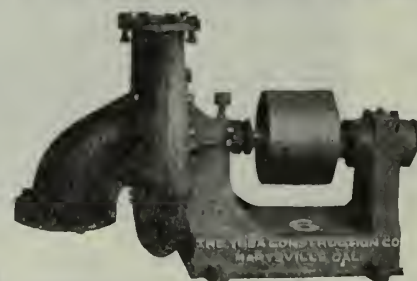
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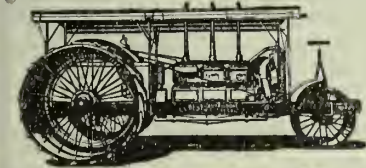
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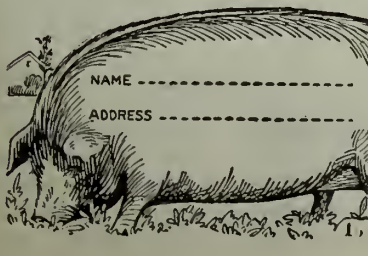
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demonstration more successful than we anticipated.

CARCASS DEMONSTRATION.—The stock judging course at an agricultural college is generally regarded with favor in this day, because it has so often been demonstrated that such a course trains the sight and touch to such a degree as to enable one to place an approximately correct value upon an animal, or to place animals in their proper order when they are exhibited in competition. That such a work can be carried farther, that it may lead to an almost accurate understanding of the value of the component parts of the animal, is not generally realized. That such is the case was clearly shown by the work of Mr. John Gosling of Kansas City, who conducted the carcass demonstration during the agricultural short course.

When a man is able to take an animal, seen for the first time, and by sight and touch tell us not only how the different parts will dress out, but also foretell to a fraction of one per cent the proportion of butcher's meat, we are clearly shown the value of stock judging as a business proposition when earnestly practised.

The animals used in the demonstration were a grade Hereford steer, a Shropshire ewe, a Shropshire wether, a South-down wether and a Dorset lamb. The first stage was judging on the hoof—a full discussion upon the merits and faults of the different animals, ending by a sort of prediction on the part of Mr. Gosling as to what would be revealed by a block test.

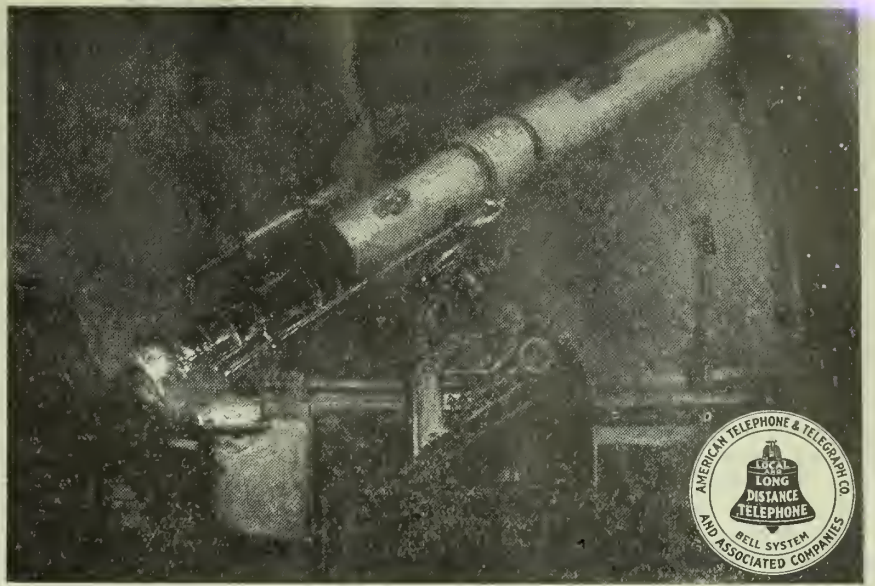
This was on Wednesday; on Thursday the animals were slaughtered, and on Friday the carcasses were cut up in the University gymnasium, where hooks and tables were arranged for an effective display. A large audience spent most of the afternoon observing the proper cutting of the carcasses and listening to the full explanations given by Mr. Gosling as to the market and food values of the different parts.

The speaker dwelt strongly upon the value of the fattening process, pointing out that the chief improvement lay in the enhanced value of the lean portions because of the fattening, because of the increased store of nutriment in those parts preferred by the consumer.

That the present high cost of meats is attracting general attention was shown by a request on the part of the many ladies present that Mr. Gosling hold a sort of after-meeting for the purpose of going still farther into the food values of those parts of the animal that are in least demand in the butcher's shop.

Another important feature of the demonstration was furnished by two veal carcasses, one of the beef type and the other showing decided evidence of the dairy type. The shoulder loin and hind-quarters of the first possessed such superiority over the same portions of the second that one was led to dwell upon the indiscriminate breeding carried on by some stockmen a lack of forethought that means loss of so much time and money. It was patent that nature intended these two animals for widely different purposes, yet in the general course of events they would have been treated in the same way on many ranches.

Mr. Gosling placed himself on record in the matter of criticism of what he called "alfalfa beef." Alfalfa is a growth-producing food, but when a stockman relies upon alfalfa alone to fit his animals for the market, he is placing himself at a disadvantage, and he cannot hope to compete with the man who fits his animals upon a balanced ration. The speaker strongly advocated the growing of roots and grain for the purpose of securing for his market stock a quicker finish of a better quality.



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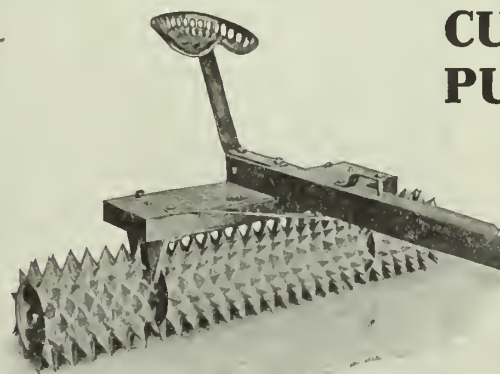
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PEERLESS IRON WORKS, Sacramento, Cal.
Mention Rural Press.

Teaching Horses to Jump.

Our youth who are teaching horses to jump by the usual range methods may be interested to compare their practices with the approved ways by which horses are trained for fox-hunting Englishmen. A writer for the London Farm and Home gives the following:

There are several different ways of teaching young horses the rudiments of jumping. The most usual plan is to ride them straight away over small and easy jumps, and as they become more proficient gradually to put them at stiffer and bigger obstacles. And this is undoubtedly quite as good a method as any that can be devised, while it has the merit of being the simplest and least troublesome. Preferably, these lessons should—at any rate, to begin with—take place in a paddock or other suitable enclosure in which a couple of hushed hurdles and a leaping bar are put up, these obstacles being the most suitable and easiest for an entirely unpractised horse to jump in good style. One can, however, from the first take the animal over natural jumps of an easy nature in the open country, though this is generally rather less satisfactory, for, apart from the fact that the obstacles found here are not always suitable and straightforward to negotiate as those that have been specially set up for the purpose, the horse cannot be kept under such good control as in an enclosed space.

It is never wise to ask a young horse to do any jumping under the rider until it has been well broken in and become perfectly amenable to the bridle, for an animal that is only partially trained, and consequently not yet fully subservient to the control of its rider, cannot be kept properly straight when put at a jump; in fact, the rider will not have sufficient

power over it even to make it face a jump at all if it does not choose to do so. Now, to invite defeat of one's wishes on the part of the animal in this way is always a most undesirable thing, because a horse has a retentive memory, and having successfully foiled its rider once or twice, it is very apt to repeat its recalcitrant behavior on future occasions, with the very possible result of its acquiring the baneful habit of refusing or swerving at its jumps. Once established, this bad habit which renders a horse practically useless for jumping purposes, is not readily eradicated again.

THE "ON-FOOT" METHOD.—Instead of the above described method of riding a horse over jumps from the outset, the plan is frequently favored of first of all giving it a preliminary course of leaping lessons on foot, either by means of a pair of long reins, which is the better way, or else simply by running it on the lunge, it being made to take the obstacle by itself, with or without the aid of a whip. In some cases the services of an assistant are enlisted, he handling the whip and, standing behind the animal, therewith helping it over the jump. However, a helper is not in most cases absolutely necessary, and it is always better to dispense with his services, if this can possibly be done, for the horse is more likely to be flustered and rendered unsteady when its handling is shared by two persons than when only one man undertakes the whole job. Still, in this matter the breaker must use his own discretion. This method of inculcating the first principles of jumping with the breaker remaining on foot answers very well, and it is often practised in Ireland, which is so noted for producing fine jumpers, although the excellent leaping powers usually possessed by the Irish breed of hunters are mainly due rather to the great natural aptitude for jumping inherent in it than to any special system of training.

One cannot, however, make much progress or obtain a very finished style of jumping with the "on-foot" method, and much preliminary leaping instruction may perfectly well be dispensed with if the breaker feels himself competent to ride the young horse over jumps without such preliminaries. The main advantage of this method from one point of view is that all risks of a fall (excepting for the horse) are eliminated, but as regards this there is to be said that anyone who is not prepared to accept the risk of occasional falls is never likely to make a horse into a good and bold jumper. The "on-foot" method is specially applicable in the case of quite young colts (three-year-olds) which it is wished to train in jumping at any early age, and before they have been properly broken to the saddle or are really strong enough to stand the strain of jumping with the weight of a rider on their back. This last might easily prove injurious to their legs and joints; in fact, it probably would, but such young animals can safely be jumped a little over easy obstacles without a rider on them. The opinion is frequently held that teaching them to jump at an early age tends to make colts all the better jumpers, and some therefore prefer to let their young hunters do a bit of jumping as three-year-olds, or even sooner. The writer's personal view is that it is quite early enough to start initiating them over jumps at that age. Certain it is that many of the best and most accomplished jumpers are not taught to jump until they are four, so that there is no need to commence earlier.

A JUMPING TRACK.—A method sometimes adopted of teaching young colts to jump consists in having a special kind of



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In the case of the Cream Separator, however, the **best** is fortunately the **cheapest** as well, and it is of the greatest importance that every buyer of a separator should know this.



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jumping school or enclosure—long and narrow in shape, with a high and strong fence, in which are placed a few obstacles reaching right across its width, and in this they are given their early leaping lessons, being turned into the enclosure entirely loose and made to traverse it from end to end and take the jumps at the point of the whip. Instead of being of long and rectangular shape, the jumping track or school is occasionally made circular, which answers equally well. This is quite a good way of giving colts some preliminary jumping practice, and older horses may also suitably be taught to jump by that method, but of course it is only worth while to have a special jump enclosure of this kind erected

where several colts and young hunters have to be trained every year.

ACROSS COUNTRY PRACTICE.—Finally, there is the old-fashioned procedure of leading the young horse on foot across country at the end of a long leading rein, it being led over easy jumps by the breaker preceding it and trying to entice it over, an assistant, if necessary, being got to urge the hesitating animal on from behind. But this is a very pottering and at best an unsatisfactory plan, because the horse's usual inclination is to hang back at the jump when thus led, and it generally takes a long time before it can finally be induced to take it. Standing in front of the animal and at some distance away from its head, with the horse back-



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ing away from him, the breaker has practically no power over it. Taught in this manner, a young horse is very liable to develop what is known as a "sticky" style of jumping, than which there is no more undesirable failing in a hunter.

HINTS FOR THE CARE OF BEEF CALVES.

To the Editor: The livestock articles printed in the RURAL PRESS are very good, and I think the paper the best of its kind that is published on the Coast. We have had considerable dysentery among our registered heifer calves this year. Kindly let me know what you think the cause of it is, and the best remedy to cure it.—S. T. Walker, Elk, Calif.

ANSWER BY W. M. CARRUTHERS.

It seems that most of our pure-bred men in California do not realize the proper way to manage pure-bred beef stock under range conditions. Pure-bred cattle have much smaller livers and are, therefore, much more sluggish than the average range cattle. Pure-breds handled under range conditions, require a little more care than grades. When registered cattle are handled the same as grade cattle, they are always in a much poorer condition than the grades handled in the same identical way. When handled the same as range stock, it will be found that pure-breds will cause a good deal of trouble in the way of care and the per cent of loss will be heavy.

We may infer from our subscriber's letter that these conditions prevail in the country where he is running his pure-bred herd and until some thoroughly experienced man in this line is consulted and his suggestion strictly adhered to, his pure-bred cattle will continue to give him trouble.

On most ranges, the breeding herd is allowed to run down a little too much in condition in the early winter, before they are given any extra feed to keep them up. Should pure-bred cattle on the range be handled this way it will take a good deal more feed to get them back into condition than it will the average grades. Right here is where a good deal of the trouble comes from, that is now bothering our friend up at Elk.

When these pure-bred cows calve, they are generally thin in flesh and the calves are not so rugged as they should be. Any strong feed that the cows are given at this time has a tendency to change the milk. These calves, not being as strong as they ought to be, their digestive organs are easily put out of order and dysentery follows. The calves cannot be cured until the cows are first cured.

Take the calves that are giving trouble with their mothers to the barn, tie the cow up; give her a quart bottle of linseed oil followed in 12 hours with a pound and a half of salt. Be sure and put a teaspoon full of ginger in the salt before drenching the cow. Then keep her up for a week or so until her system is in a thoroughly good condition. At the same time, when the cow is being cared for, give the calf a thorough good dose of castor oil.

This treatment will give the cow and calf a fresh start and from then on they should both thrive. This is the old method of treatment, which Billy Watson used at Turlington, 25 years ago, and it is doubtful if we have ever had in this country a better herdsman than this man was.

LUNG WORMS.

Pneumonia of hogs is not always due to worms, yet it is not uncommon to find young pigs, and even old hogs, to be affected, and dying from inflammation of the lungs and bronchial tubes due to the presence of large numbers of small white

to whitish-brown thread-like worms which are found to be located in the bronchial tubes. This parasite is quite common in the United States.

Verminous pneumonia is most often found on low swampy land, although it may occur on the uplands.

This disease of pigs occurs at all times of the year, but is more frequently observed during the late summer and early fall. When pigs are first affected, the symptoms are few and elusive, but as the invasion of this worm progresses, the symptoms become more and more pronounced. At this stage of development, frequent spells of coughing are noticed.

There is a thick discharge from the nostrils which will at times contain masses of mucous. A close examination of this material will at times reveal the presence of young worms as well as adult worms. The symptoms most apparent to the owner are thinness and lack of development of the pigs. Death is probably due to the air passages being closed or to a watery condition of the lungs.

At times this disease may be confused with hog cholera or even with tuberculosis of swine. By careful study of the symptoms and history, together with the finding of the worms either before death in the discharges from the nostrils, or after death in the bronchial tubes at the base of the lungs, should be sufficient evidence to enable one to be sure.

It is very difficult to relieve hogs affected with lung worms because of the danger of injuring the lungs or air passages in undertaking to kill or dislodge the worms. "An ounce of prevention is

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Have shipment of nine earloads of choice stock now en route from New York, Wisconsin, and Ohio. All sold for immediate delivery. Going to most prominent breeders on the Coast.

Am now booking orders for next shipment.

Help me fill a special train with the finest live stock ever brought to the Coast.

Am prepared to furnish Registered or grade Dairy Cows, Beef Stock, Sheep, Swine, or Draft Horses.

I make personal selection and guarantee special care en route and lowest freight rates in ear or train-load shipments.

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W. M. CARRUTHERS

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worth a pound of cure." Be very careful not to introduce into the herd any hogs that are affected by the parasite. If you know that any low or swampy ground on your farm has been used as pasture for infected hogs, keep healthy hogs away from it. This is not an absolute preventive as the trouble sometimes occurs in uplands as well as lowlands.—Dr. W. L. Boyd, University Farm, St. Paul.

WHAT FOR A HALTER-PULLER?

To the Editor: I have a mare that I bought recently, about 15 years old, which has a habit of pulling back and trying to break her halter rope when I go to put the harness on her. Is there any way I can break her of this habit?—R. A. W.,—Amedee.

Who will answer?

Farmers in the vicinity of Wallace, Comanche, Clements and Lockeford, San Joaquin county, have met to consider the formation of an irrigation district. A committee has obtained an option on the Murray ditch, running from the Mokelumne river. The land under the same is but little developed, but would make excellent fruit and alfalfa land.

The Shepherd's

If you want to buy, sell, or learn how to properly care for sheep or goats you need this beautiful publication; the best in the world. Only 50c a year. Free sample copy to those mentioning this weekly. Agents wanted. Address 310 Monadnock Building, Chicago, Illinois.

Journal

Butchering on the Farm.

(Continued From Page 353.)

the best part of the veal." This happens when the calf is hung up by its front feet or when it is not bled properly and is shipped too soon after killing. The veal is thrown into the car or wagon on its back or side, and as the blood has not set, it runs back over the loins and coagulates. Many farmers, before shipping their veal, swab them out with a damp sack or cloth, so as to leave the inside of the carcass bloodless.

In the summer, when the roads and cars are dusty and the flies thick, a piece of clean burlap wrapped around a veal is an excellent thing to insure the carcass arriving in good condition, as it not only keeps out the dirt, but also the calf holds its form, nor is it so liable to be bruised as when spread out.

The commission men and hide buyers are clamoring more and more that no part of the hide be wasted. Some demand that if the feet are cut off at the knee joints, that the hide be skinned as far back as the joints. In the same way the head should be handled; it should be cut off as close to the skull as possible, so as to leave the ears on the carcass, for every little bit of hide helps in this day of high-priced leather.

KILLING A BEEF.—A beef that is to be killed should be brought into the corral the morning before and held 24 hours where it can get neither food nor water. If possible, put the animal in the killing pen at the start, and then there is no driving or overheating prior to this act. One of the most convenient and handy farm butchering places I know of is situated on a stock ranch in Monterey county. Under a large oak tree a narrow chute has been built which, by the way, is used for examining horses or cattle, branding, spraying, and what not. Over this chute is a pulley and ropes attached to a limb of the oak, and when a beef it to be killed it is driven to the desired position. Scantling are laid across the chute, fore and aft, so that the beef cannot move, a box is placed in a convenient position, on which the man with the ax mounts and stuns the beef. The throat is cut and the gambrel inserted at the knee of the animal hoisted immediately, so as not to allow it to bleed while lying on the ground.

It frequently happens on a farm or ranch that a beef will break a leg or injure itself so that there is no recovery. When such is the case the animal should be killed immediately, before the fever sets in and spoils the meat. No time, either, should be lost in removing the entrails and hanging the beef up so as to bleed. If the weather is warm or the animal was feverish, all animal heat should be removed as quickly as possible. A good method of accomplishing this is to cut the loins through to the socket bone and then hang up by the flank. Cut the rump in twain at the thickest part and sever the forequarters in the heaviest part of the shoulder. This will let the air into the thick flesh.

When a large supply of fresh meat is suddenly thrust upon the average farmer in the summer, unless he has an excellent cooling system, the meat will spoil in a short time. Besides pickling and corning the beef, a very practicable way of handling and one quite common with the old stockman is drying or jerking the meat. To them it is as essential in their larders as ham or bacon. It is an excellent meat to have for emergencies; where for some reason or another the butcher wagon does not put in an appearance, or the meat on hand becomes tainted by the heat.

DRYING BEEF.—The best way to dry beef is to first cut into long wide sheets, not in thick narrow strips as is commonly done. When in strips the salt does not permeate through the fibre of the meat as when in sheets. Usually in order to get enough salt on strips, too much is used and it crystallizes on the outside and spoils the meat. The meat should never be dried under the direct rays of the sun; always put it on ropes or wire in the shade, as under a tree or a shed. And to be sure that the flies or the yellow-jackets do not bother it, a smudge or smoke of green willow is a good thing, but not necessary. The smoke also gives a peculiar flavor to the dried meat, particularly that of the laurel or bay tree. The meat should not be allowed to get too hard or dry, but when it reaches that stage where there is no danger of it spoiling, it should be taken down and sacked.

A favorite way of cooking dried beef, or "carne seco," as the Mexicans have it, is as follows. This is a dish not only satisfying but appetizing and one for which I have known epicures to renounce quail and thick steaks to eat. Put six large sweet chile peppers in a fire or oven until the skins blister. Peel them, remove the seeds and cut what remains very fine. In the meantime take about a pound of dried meat—less if anything—and chop into small pieces. Boil this slowly on the back of the stove until the water is absorbed. Then pour in three tablespoonfuls of olive oil—cotton seed oil or lard will do in a pinch—and put over the fire where it should simmer for an hour. Add the chile mixture, half a pint of thick, strained tomatoes, two or three large onions chopped fine, or two cloves of garlic mashed—either way to suit taste; teaspoonful of salt and cook another hour, and it is then ready to be served.

LARD.—In these days of high priced lard, the farmer can make a lard composed of one-third tallow and two-thirds pork fat, that requires an expert to recognize from pure 'leaf fat' lard. Either beef or mutton tallow can be used, providing that it is not yellow. The tallow can be bleached and all vestige of smell or taste peculiar thereto can be removed by heating the tallow and dropping it into hot water, then reheating and dropping into cold; after which it can be mixed in the proportions given with the pork fat.

HIDES.—A hide is something that receives little attention on the farm from the time it is removed to the time the hide buyer comes after it; yet a top price is asked and expected by the farmer for the skin; but which, by the way, is seldom given. In the first place all "incurrain" hides or those from dead animals should be tagged, because the keen buyer can spot them in a minute and consequently will try to cut down the price on all the rest, whereas if they are marked and packed separately there will be no incentive.

There are two ways of keeping a hide, either by drying or salting. Dry hides bring a higher price, as they are lighter in proportion than those impregnated with water and salt. When a hide is to be dried, it should first be stretched out so that when it dries it will have size, and not be shrunken up, as will happen if allowed to dry loosely on a fence or beam. A hide to be salted should first be laid out on the floor, so as to be level; this can be done by lapping in the ends. The salt should go on both sides of the hide and under the laps. The outside

edge of the hide should be a trifle higher than the inside, just so the liquid will not ooze from the hide, for if it does, the hide will spoil. In this regard, never pile the hides very high, as the more there are in

one bunch the more danger of spoiling. Some butchers have a rule never to pile a hide until the day they are ready for shipment, and they have the same rule in regard to sheep pelts. In salting hides



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it is important that they be watched to see that they do not get hot and sweat, because when this happens the hair slips and the hide is ruined.

GOAT PELTS.—As the pelt is often the most valuable part of a goat, it should be taken care of. The minute the skin is removed, sprinkle with fine salt and then hang up so that all the moisture will be drawn out by the salt and the pelts will dry in good shape. Always, however, in handling goat skins see that no blood gets on the hairs, as it discolors them. Another good way to keep a goat pelt its natural size is, after rubbing in the salt, to stretch against a flat surface, the hairy side down.

VETERINARY NOTES.

[By Dr. M. H. REYNOLDS, University Farm, St. Paul.]

Joint ail in colts and calves is simply an inflammation of joint structure due to a germ infection which gains entrance through the raw navel cord at the time of birth or very soon after.

When treating cattle or other domestic animals for lice, bear in mind that it is just as necessary to clean up and disinfect the stables, as to treat the affected animals.

For lice on cattle, in cold weather dust Persian insect powder over the backs and rumps; or brush the necks and backs daily, using a little kerosene on a stiff brush—not enough kerosene to wet the hair or injure the skin.

Black leg is a disease of young cattle usually under two years of age. Medical treatment is very unsatisfactory but there is a vaccine easily obtained from the Minnesota Experiment Station, which is very reliable as a preventive.

There is an unnecessary prejudice against lumpy-jaw cattle. A considerable percentage of these cases are passed by government inspectors as fit for food purposes. Only the very bad cases, especially those where the disease affects several organs or parts of the body, are condemned.

For worms or other parasites living free in the stomach or intestines, apparently careful experimental work has shown good results by the use of low grade tobacco leaves sometimes called "Tobacco trash." This should be chopped up fine; mixed with an equal amount of salt and kept constantly before the sheep.

Infectious abortion among cattle has become one of the most serious problems for cattle owners so far as infectious diseases are concerned. It is well entitled to rank in importance with tuberculosis, hog cholera, and Texas fever. Two new medical treatments have recently appeared, either one of which may possibly prove to be of very great importance.

HORSES AND MULES.

REGISTERED PERCHERONS FOR SALE—Send for list to owner. All acclimated. Two gray stallions matured. State certificates of soundness. One 2-year-old black stallion. One white brood mare. Four black brood mares. Prices low owing to owner's illness. Send for list. M. E. Sherman, R. R. 6, Box 86, Fresno, Cal.

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tance. One abortin, is used like tuberculin, as a diagnostic; and the other is a vaccine, which it is hoped will immunize heifers against the infection. There is not sufficient reliable information available as yet, upon which to justify any definite statement. Breeders should keep these things in mind and watch for future development.

The large swelling that occasionally appears in front of the knees of cattle, particularly old cows, is properly known as hygroma. It is usually filled with a watery or straw-colored fluid. Opening or other surgical operation is not advisable except by a competent veterinarian. These swellings usually do no harm and most of the cases are most wisely left alone.

For ringworm on calves or other domestic animals common at this season of

the year, give a good scrubbing with stiff brush, soap, and water; then apply tincture of iodine and glacial acetic acid in equal parts. Use a small brush for the medicine and be careful, especially when working near the eyes. Apply twice a day for the first two days and then once daily.

Cough among hogs may be due to very dusty quarters. With young hogs it is frequently due to minute thread-like worms in the bronchial tubes. A soft, hacking cough is a very common symptom of hog cholera. Hogs also have the common forms of bronchitis and pneumonia, just like other animals, and people. With hogs, coughs and lung troubles, aside from cholera, are frequently due to sleeping in warm quarters, possibly piled up, and then going out into cold places to feed.



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Little Chick Talks: or Growing Future Layers.

[Written for the PACIFIC RURAL PRESS by
SUSAN SWAYSGOOD.]

I read somewhere that a man has just paid \$800 for the White Rock hen "Lady Show You" that laid the greatest number of eggs in the Missouri egg-laying contest. Lady Show You laid 281 eggs in the year, and that was sure a good record: the question is, will her progeny be as productive if given the ordinary treatment that chicks get?

The laying qualities of a hen come from a combination of causes, and if one or more of the causes are neglected the productive quality is more or less injured or lessened. The old-time barnyard fowl had for its greatest asset rugged health and a big store of vitality; it had to have, because in many cases it was a struggle for existence, and only the fit survived. Very little attention was paid either to roosting quarters or feed, chickens were supposed to rustle for themselves and provide the family with eggs to boot. But inbreeding, close confinement and forcing with drugs and condiments has weakened the old mongrel stock, so that they can neither rustle for themselves nor provide the family with eggs. And now the farmer is beginning to realize that if he wants eggs at first-hand he must breed standard bred stock.

BREEDING REQUIREMENTS.—But here we are again. How long will the progeny of Lady Show You, or any other well-bred hen, give good results if neglected and left to rustle? To be competent of making such a record a hen must be fed well from the time she commences to pick until she quits this earthly vale; or or at least as long as she is in the producing business. To make it plainer: a hen that has a capacity to lay a large number of eggs must have a capacity to eat and digest a large or corresponding amount of feed. If the feed is where she can get it, from a chick up, she will attend to that part herself; but if the food is served out daily, it must be served regularly and unstintingly. It won't do to feed chicks intended for layers, as the man did his hogs, when he fed a big ration one day he said that was a streak of fat, but in order to even things up he starved them the next day and that made a streak of lean.

Now in raising chicks to be good layers we make every streak count for egg production. We don't want fat, but we do want large capacity; we want good strong limbs, for unless the bone is good and legs strong they will not carry the weight or scratch for food. A good frame, then, is what we want first; and this is to be built out of air, food, water and exercise.

First the air, no matter whether the chicks are brooded in a brooder or under a hen, there will be foul air if the droppings are not kept cleaned up. For brooder chicks one of the very best absorbents I know of is good sand. Keep at least four or five inches of it in the brooder and by cleaning out every other day you will have solved the problem of sanitary brooding. When the chicks are out on the cleaning day, turn the brooder up to the sun, and once in a while spray with some disinfectant: this makes doubly sure of cleanliness and freedom from mites.

When chicks are running with hens clean out just as you would for brooder chicks and open up the coop to the sun's rays, and in addition dust the hen at least once in two weeks as long as she broods the chicks and you will never be troubled with lousy chicks. Sometimes a little olive oil may be rubbed under the wings, just a little, as a preventive against head

lice. Give the hen a sand bed, too, as it absorbs all bad odors, and a hen is naturally clean if you will let her be so.

FEEDING.—Now comes the food question, and it is not so much what we feed as it is that the feed contains the elements of growth. In these days of high-priced feed and low-priced eggs we can't afford to buy porterhouse steak for our chickens—that's sure. The place to begin is where we can economize; all infertile eggs can be used up for animal food in some way. I like to make a Johnny-cake with them, as the chicks relish it and it makes bone. To make it, use as many eggs as you wish (eight or ten eggs with a pint of sour milk makes quite a cake), put in a little shortening and a little molasses, a little bone meal, same of rolled oats and equal parts corn meal and good shorts; add salt and enough baking soda to raise and bake pretty well but not too hard. It should be dry and crumbly and when you feed it the chicks will not let much go to waste. Every ingredient is a bone and muscle maker, and nearly every one is to be found on the average farm or poultry ranch; but if you have some of the materials but not all, why make the cake with what you have and let the rest go. That is the only way to economize.

Nearly all of us can grow lettuce or alfalfa or kale, and these leaf and stem products contain all the mineral salts needed for the health and growth of the chicks. Sprouted oats is another good bone maker, cabbage, and I might add to the list, but almost any good wholesome feed is all right. As for frequency of feeding, that must be a matter for each one to decide for himself. Everybody can't be giving time to feed a few chicks every two or three hours, so in some cases it is best to put a supply where the chicks can help themselves at all times.

SANITATION.—See that all the drinking vessels are scalded out at least once a week and give newly hatched chicks warm water, if it has to be boiled so much the better for the first few days anyway. Wooden troughs are not the most sanitary things in the world to feed chicks in, but if you must feed in them, pour boiling hot lye water in and over them every week or so. One can of lye goes a long way in cleansing food and water vessels but it is very effective. As the chicks get older the care must not be relaxed, if we are to grow heavy layers, but the feed must be kept up in accordance with the needs of the body; every night when they go to bed the little craw should be bumping full of something. The Indian told the whole story when he said, "Indian must have belly full." Of course we all have our favorite foods, but as stated before what it is is not of such great importance as that they have a-plenty. No half-fed chicken will ever be a great layer because it won't have the stamina to back it up. Those who have milk can surely grow the hens that will, all other things being equal, be able to produce the eggs in abundance. Lacking milk, a little bone meal mixed in a mash or in a Johnny cake once a day will be good. When you see chicks with leg weakness it is very often because of a lack of bone making material; bone meal or milk will prevent all that, unless caused from inbreeding or the chicks being too fat. Corn is about the worst grain food we have for young chicks of the heavy breeds, while for Leghorns it may safely be fed once a day at least.

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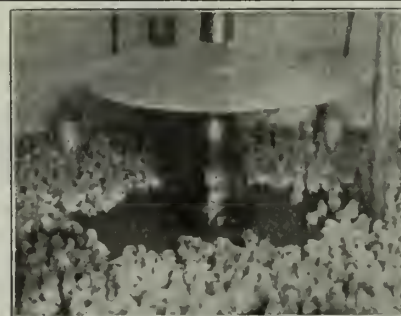
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CHICKS—White Leghorn, White Rock; high-class stock. Send for booklet of prices. Mahajo Farm, P. O. Box 597, Sacramento, Cal.

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BABY CHICKS, from heavy layers. White Leghorns, Barred Rocks, R. I. Reds. Free folder. White Hatchery, Petaluma.

BUFF ORPINGTON AND COLUMBIAN WYANDOTTE; eggs and stock. Mrs. Leona Brophy, 1415 N. St., Fresno.

BARRED ROCKS ONLY—Now is the time to order your eggs and hatched chicks. Send for price list. G. L. Hawley, Madera, Cal.

BARRED PLYMOUTH ROCKS, White Minorcas, White Holland turkeys. Stock and eggs only. L. N. Cobbledick, Oakland.

CHICKENS, DUCKS, GEESE, GUINEAS, Pea fowl. Address Wm. A. French, 545 W. Park St., Stockton, Cal.

rhea, but sometimes if a little feed is left over it will sour on the ground and the chicks may find and eat it. The remedy lies in removing them to fresh ground as quick as possible, feeding nothing but dry feed and boiling all the water they drink. This is not such a big task as it looks, nearly every one could put a kettle on and boil enough for the day while eating their own breakfast. As I never use drugs myself I do not like to give them to chickens, and boiled water is cheaper and often just as effective as the most costly drugs. A little rice boiled and a stick of cinnamon with it is also good.

EXERCISE.—Now we come to the last, but by no means least, of the four requisites for growing heavy layers—exercise. For the brooder chicks there is nothing better than short cut alfalfa or clover, and it is strange that some of these alfalfa mills in California do not make this product. I am sure it would pay them well to do so, as all we can buy has to come all the way from Kansas City. The alfalfa meal made in this State is all right for mash, but is too dusty for scratching litter. Those who have a barn where alfalfa hay has been stored are all right, but we are not all so fortunate. All the nice leaves and small stuff should be picked up and carried out to the little chicks as scratch material. Feed all the grain in this and make them scratch or starve.

Small strings of meat can be given at odd times, just as leg exercise and a good way of furnishing animal food. Anything that tends to develop the muscles or internal organs will serve the purpose. Standing around or staying huddled up in an ill-smelling brooder may make flesh, but it will not make the stuff required in heavy layers. All that must be fed and bred in the bone before it comes out in the flesh, and that is one great reason why "like does not always produce like."

CONVENIENT POULTRY HOUSE.

[Written for the PACIFIC RURAL PRESS.]

The average limit for the number of hens for a man to look after is, we believe, generally put at 1,000 fowls. In a visit to the ranch of Wilber H. Ward, Morgan Hill, Santa Clara County, we saw a couple of houses each with a capacity of 750 fowls, which Mr. Ward stated could be so easily looked after that one man could attend to four, looking after the eggs and all other matters connected with them. On this place there is a lot of fruit and other things than egg production to attend to, so the fact that only two such houses are used is no sign that the estimate is too large. Likewise, there is a fine-looking lot of White Leghorns kept and the ranch is a financial success, so the equipment is very satisfactory in operation.

One of these houses is 80 feet long by 16 feet wide, 7 feet high at the eaves. It runs east and west and has an open front, facing south. The front is covered with wire and opens into a good-sized run. Every evening doors into this yard are closed to keep out rats, coons and other vermin. When a big storm comes from the south, burlap is let down over the front for protection. The floor is of concrete and when the litter is removed there is no doubt when the floor has been reached and a thorough job can be made

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of the cleaning. The floor is cleaned frequently and a new layer of dirt and straw put on. Along the ridge-pole there is a space about a foot wide which can be opened for ventilation in hot weather.

The dropping board is about six feet wide and has a decided slope. It can be cleaned by driving a low wagon along and scraping the droppings off right into the wagon. Every 16 feet along there is a wall erected the width of the dropping board, dividing it into five sections. These walls are used to prevent draft. The roosts are put on a frame hung by wires and can be removed for disinfecting.

The nests are under the dropping board, back several inches from the edge, in order to give the side of the wagon room to get under the edge when the cleaning is done. These nests are entered by the hens from the rear, and the eggs are gathered by opening a door from the front. The whole set of nests, each eight feet long, can be taken right out for cleaning and disinfecting with the greatest convenience. The only inconvenient thing about them is that they are a few inches back from the edge, but this is no great difficulty. For disinfecting purposes one pint of crude carbolic acid to a bucket of stove distillate is used.

BROODER.—The brooder where the chickens are raised is also most convenient. The hover is about a foot high and eight feet in diameter. It is balanced by a counterweight and can be pulled up when desired for cleaning. Heat is applied by a burner beneath the floor and the temperature is kept as desired by a thermostat. The latter is an arrangement by which the flow of oil is regulated by the temperature. If too much oil were to run in, the increase of temperature would make the opening close up and the flow would be diminished so that the temperature would fall. Likewise, a fall in temperature causes more oil to flow, and no matter what the weather is no regulation is required. These thermostats have been in common use for a long time in certain kinds of work, the only thing here is their application to brooders.

The burned air from the oil flame is removed from the building by a pipe, and the heat comes by fresh air which is heated as it enters. The system has been used for several years. Since being

in operation certain features of it have been patented by other parties.



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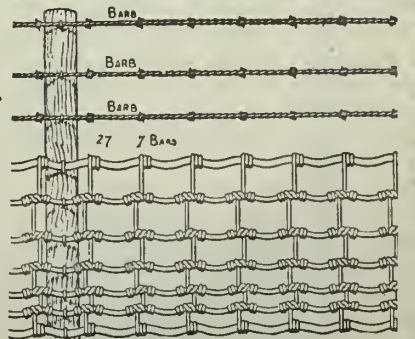
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Home Improvement, No. 12.

Painting the Farm House.

[Written for the PACIFIC RURAL PRESS by
a Painter.]

The average farmer of California is beginning to see the need of pleasanter home surroundings, and this is perhaps more noticeable in the newer sections where new homes are being built than elsewhere. While the improved plumbing makes more sanitary conditions, the modern carpenter more artistic and convenient homes, yet it remains for the painter and decorator to give the final touch which is to either make the home pleasing to the eye, or, on the other hand, spoil the effects expected by the owner.

Being a practical painter and paper-hanger for several years, the writer has seen homes which had been planned months ahead which had been at the finish very common-place looking houses, simply by having a slouch mechanic do the work.

Right here it should be said, "Do not hire the cheap mechanic, nor buy cheap material," as almost invariably one regrets it.

If you are building a home, just remember that it is to be a home and not a makeshift built along the lines that so many home builders associations put up in the cities, that are sold on the installment plan, as these are only homes for a few years, after which they are continually needing repairs and are only shacks and shells.

The practice of letting a contract to the cheapest bidder is the one usually adopted on small homes, but if one will inquire into the situation he will find that practically all of the work in larger cities which has to be done first class, such as large hotels, better residence houses, etc., are done on a percentage, or, in other words, the contractor stakes his reputation on the job being first class, and in payment receives a certain percentage of the total cost, the owner buying materials and paying the labor bills. While this scheme is not practicable with the house of from 4 to 8 rooms, he will in most cases get a better job if he hires a reliable contractor by the day. Of course this is objected to for the reason that more loafing or shirking is done, but this we believe is the most satisfactory way if, as before stated, the house is being built for permanent use such as most farmers build.

The extra cost in doing the good painting on the small house doesn't amount in dollars to very much, yet if it is done cheaply it is only a short time until the work has to be done all over at a greater second cost and it never does have a finished look.

Assuming then that the rancher wishes a finished and well done job, we will endeavor to bring out the more essential points needed to meet this end.

First, do not start the outside painting until the carpenter has entirely finished the outside, as if this is done it necessitates touching up those parts not before finished, which adds to the cost and in a great many cases shows up through the second coat.

As to materials, where green or light grey is to be used on the roof, it is cheaper and more satisfactory to buy them ready mixed. For reds buy the dry Venetian or metallic reds and mix it with linseed oil. For first-class work nothing but pure linseed oil should be used as substitutes are short-lived, but many do not care to use linseed oil for roofs at present prices. However, we would use as much as we could afford and then thin with distillate.

For priming or first coating the house nothing but pure linseed oil and white

lead added to by a small proportion of yellow ochre, if the body by anything but white. This gives a surface and tends to make a better foundation than straight lead and oil.

For second coat work use pure lead and oil with coloring added if a different shade than white is desired. If the weather is pleasant a dryer is not necessary, but if stormy or threatening weather prevail use a small amount of japan dryer, also add a small amount of dryer to color used on porch floors at any time. Turpentine answers the same purpose, but in evaporating takes more of the life out of the pigment than japan dryer.

In choosing color for outside, be sure that they go well together, as for instance cream and brown. White matches well with any color, but this is not so with any other color.

Where rough finished rustic is used and a mission effect is desired, stain the rustic with an oil stain made of linseed oil and colored to the desired shade by using burnt umber, raw sienna for browns or dark tans, and Venetian red or burnt sienna for reds. Of course other colors can be used, but these are the ones most in vogue. For greens the prepared stains are more satisfactory than homemade ones, as the desired shade can easily be obtained at a smaller cost.

After the first or primary coat is finished, the carpenter work should be finished inside, and by leaving the outside at this time it can stand a week or ten days, when it is well hardened.

The inside woodwork of a plastered house should first be considered. Where any of the dark oak shades are desired, as they generally are nowadays, in the living-room, dining-room and hall, an oil stain can be made with linseed oil colored with the umbers or siennas above mentioned, and for mission color a large portion of lampblack ground in oil is used. Use plenty of japan dryer in this, also thin with turpentine as this stain is only for coloring anyway. After applying with a brush let it set a few minutes, after which wipe off with a waste rag. This allows the color to darken the softer wood and brings the grain out much better than by simply applying the color alone. A good way is to use a waste board for a sample before starting the job.

After staining putty up with putty colored to match the wood. Do this by adding the pure color to the putty. Have several shades so as to match the different shades of the wood, as a poor job of puttying spoils all. Press in firmly with thumb and cut off with putty knife, but be sure that the hole is entirely filled or it will sink in after varnishing, leaving an impression on the surface.

If a gloss finish is desired, one coat of alcohol shellac and one coat of good interior varnish is sufficient for the ordinary home. There are different wood fillers used in place of the shellac, but the extra cost is so small and the results so much better that the shellac should be used.

In case the kitchen pantry and perhaps in cases the bedrooms are to be finished in the natural wood, the stain is omitted and the shellac applied onto the bare wood.

As enamel white is very popular for bedrooms and the bath. They should be receiving their priming coats now if desired. This is work that only a skilled worker should be allowed to work on, for it is one of the most difficult tasks of ordinary house painting.

First the woodwork should be left as



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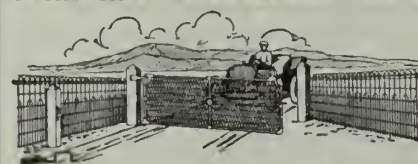
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smooth as possible by the carpenter, then apply a coat of thin shellac, after drying smooth with sandpaper; dust all dust off of woodwork and have all shavings, dirt, etc., removed from the rooms. Apply a coat of white mixed with turpentine and lead. After this is dry, sandpapered and dusted, apply another coat of lead and turpentine but add a small quantity of damar varnish and zinc. After this is dry and rubbed, the final coat of gloss can be applied, and while this doesn't make a really first-class job, it will answer for the average farm home, and if a better white is wanted more coats will improve it. One thing never to be done on good work is to mix linseed oil in the priming coats, for while they may look good at first they will soon turn yellow.

Before the final coat is applied to the woodwork all over the house, the walls should be taken care of. As tinting is the most sanitary as well as the most economical, it is more popular. Most contractors mix their own color, which is composed of whiting, glue, coloring material thinned with water, but unless a person has had the experience of mixing he had better buy some of the ready-mixed kalsomines, which are very easily mixed and applied; also the proper shades can be obtained more easily.

If the walls have hot spots in them, a size can be made with cheap varnish and distillate or gasoline, which will keep them from burning through.

In tinting the most expense is in mixing, and therefore the more colors the more expense. Cream ceilings are popular and go well with most every color used for a side wall. Different combinations will not be taken up as they are at the mercy of individual tastes.

While the tinting is being done the floors should be well covered, either with paper or cloths, as a spot on a new floor always shows.

Now that the tinting is done, the splatters of tinting color should be thoroughly washed off, the filled surface rubbed to

a smooth surface either with sandpaper or steel wool. After dusting carefully and cleaning the rooms out (this should be done before each coat, as dust flying can do much damage) the varnishing can be started.

Good interior varnish can be obtained for \$3.00 per gallon, and is the only kind that should be used, as cheap varnish soon loses its lustre and scratches badly. This work should only be done by an expert workman, as otherwise sags and skips will likely be left, also the freshly tinted wall is apt to suffer.

Never allow the painter to thin good varnish, as it is usually made at the factory to the right consistency.

If a flat finish is desired to resemble a hand polished or rubbed surface on the stained woodwork, melt some prepared floor wax and mix with the varnish while hot. This will give a more lasting surface than the average prepared flatene.

If the floors are to be finished, a good cheap way is to apply hot linseed oil on them. If a border is desired around the rugs, they may be stained in the same manner as the woodwork, shellacked and sandpapered and then polished with prepared floor wax.

Now that the inside is finished the outside should receive its final coat as before mentioned. Allow the porch floors to have ample time to harden before using and it will never be regretted, for if a good job has been done they will always look smooth as they should.

We have confined ourselves in the above to houses that are to be plastered. The painting on a canvased and papered house should be done in the same way, and aside from one or two things nothing more need be said.

One of these things is always to have the canvas hung before the casings are put on, as that makes a good surface around the casings. Lap your paper a little bit onto the casing and behind the baseboards or when the canvas shrinks it will leave a small margin of canvas with no paper on it.

Do not lap canvas around corners, but instead tack the edge as close to the corner as possible, then take common heavy hardware paper cut into strips four inches wide, soak in water eight or ten hours and paste down the corner, being sure it is well into the corner. This will make a perfect corner and will not become round; also paste a piece of hardware paper across the corners of windows, doors, etc., and you will not have cracks in those places.

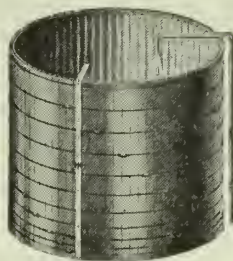
Place special emphasis on the following and you will not regret it:

First. The best mechanic possible to procure.

Second. Only best of materials; don't buy cheap oil, lead, filler or varnish, as these are the protectors of your wood.

Third. Try to have the carpenter work entirely finished before the painting is started.

Fourth. Allow plenty of time for paint to dry before moving in.



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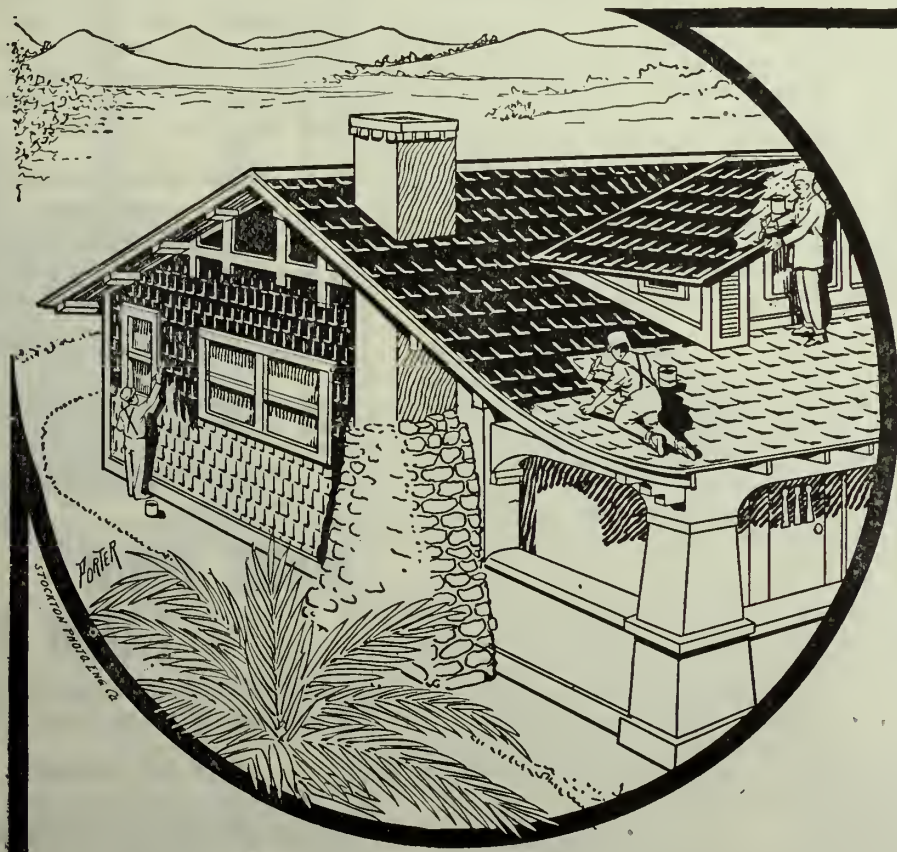
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AGRICULTURAL REVIEW.

Irrigation Progress.

Engineers are at work on an irrigation system to cover 20,000 acres near Amadee, Lassen county. The land is near Honey lake, from which the water used will be pumped. The Standish Water Company is doing the work.

The Natomas Consolidated has struck a fine flow of water at a depth of 700 feet on the Johnson ranch near the point where Sutter, Placer and Sacramento counties meet. A good deal of trouble has been met in keeping the flow, as after starting, it was evidently lost in an upper strata of sand.

West Siders near Crow's Landing and other towns are considering the possibilities of pumping from the region near Antioch and bringing the water south to their property in case other ways of getting water for their proposed irrigation district is unsatisfactory. The lift would be about 100 feet, but it might yet be profitable.

Progress of Cured Fruit Exchange.

Steady progress is being made by the California Cured Fruit Exchange, recently organized to market for the producer, the cured fruit produced in the State. Besides the ten associations reported some time ago at Yuba City, Anderson, Turlock, Corning, Red Bluff, Martinez, Chico, Maywood, Modesto, and Acampo, there are Associations in process of formation at Placerville, Healdsburg, Santa Rosa, and Guerneville. The Exchange thus covers pretty well the whole northern part of the State and down as far as Turlock in the San Joaquin valley. Organization farther down the San Joaquin has been postponed so as not to interfere with the activities of the Raisin organization and with the Farmers' Union where that is strong. Likewise, in the Santa Clara valley, there has been no organization in order that there might be no conflict of interest with the Farmers' Union. Leaving out these two districts, therefore, where growers' organizations can market the fruit, the State is pretty well covered.

The Exchange has 100 brokers in the United States, covering 200 odd markets, and has sufficient foreign connections to look after foreign trade. Although not supposed to market the 1912 crop, the Exchange has been given 40 to 50 cars by associations and has sold at least 10 at good prices. It will have the rest marketed before long.

Fruit Notes.

The University of California is to give a special short course to persons interested in budding and grafting fruit trees, at the University Farm at Davis, on March 25 to 27.

Planting has gone on so rapidly with deciduous fruits that nursery stock is running very low over the State.

San Joaquin county vineyardists are contracting their tokays at \$7.50 per ton.

The Banning cannery will be ready for operation June 1.

Frost Hurts Almonds.

A correspondent writes: Upon interviewing the almond-growers around Biggs and Gridley, I found that the recent cold snap bit them pretty hard. The Ne Plus and the IXLs are nearly all caught, and Nonpareils have been about half frozen. The almond-growers at Pennington were a little more fortunate, having escaped with a slight loss. This is certainly a great almond belt. There were about 350 acres of young trees planted this year.

Richard Campbell, of Gridley, recently bought 95 acres of land which was for-

merly owned by Mrs. Henry of San Francisco, located at Pennington, giving \$100 per acre. He is figuring on planting it to young almond trees next year.

Citrus News.

The Mutual Orange Distributors have taken over the sales end of all oranges sent out by the seven houses of the O'Neill Fruit Company.

The Central California Citrus Exchange shipped three cars of navels to Chicago the last week in February. Two sold at \$3.25 per box.

The citrus stock of all the nurserymen in northern and central California is practically sold out. In fact, all over the State very few young trees are available, and for those a good price is asked.

The 86-acre grove of A. J. Hamilton, on Jurupa avenue, Riverside, has been sold to Fred S. St. John, Saskatchewan, Canada, for \$180,000.

Land Development.

The Fair ranch, north of Woodland, has been sold for \$200,000 to a corporation headed by Hiram W. Johnson, Jr. The land will be subdivided for sale.

Caterpillars are being used with great success to clear and prepare land for crops by Hylton and Clayton Brothers near Elko, Nevada. These are the first caterpillar engines to be used in the vicinity and they are arousing great interest.

The State Reclamation Board has granted permission for a lot of reclamation work in Yolo county along the Sacramento river.

Lack of rain in the Sacramento valley may call for the irrigation of all sugar beets raised by the Sacramento Valley Sugar Co. Irrigation is seldom practiced by the company, but facilities for irrigation have been provided.

Distributors Lose McKevitt.

Frank B. McKevitt, for four years head of the California Fruit Distributors, has resigned as secretary and manager, his place being taken by Charles B. Virden, formerly of Los Angeles. The Pioneer Fruit Co., which had withdrawn from the organization on account of differences in the method of marketing, has agreed to return and will be permitted to sell in the East through its own agents. Mr. McKevitt will continue to be a director in the Distributors.

Stock Notes.

Arrangements have been completed for the creamery to be erected at Los Molinos, Tehama county. It will have a capacity of 1000 pounds a day at the start, with full possibilities for enlargement when necessary. The manufacture of ice will be a part of the work of the creamery.

Plans are being made by dairymen in the vicinity of Modesto for the reorganization and enlarging of the work of the cow-testing association, which has been in existence for nearly a year. The annual meeting will be held soon.

Shearing of sheep has started in earnest in the San Joaquin and Sacramento valleys.

Poultry Progress.

The Santa Rosa Poultry Association has arranged to take the eggs sent by members and to candle, grade, pack, and sell them to the best possible advantage. All over Sonoma county poultrymen are getting together in co-operation in marketing.

The Western Meat Co. of San Francisco has offered to give to the egg men

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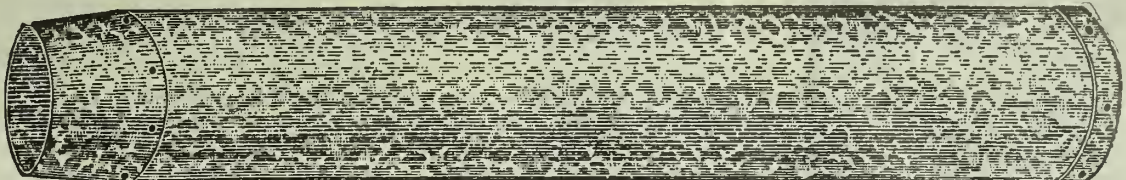

In case a little misunderstanding should arise as to the status of the dairy bills before the legislature, it might be stated that all opposition to the Strobebridge bill, which the State Dairy Association recently took exception to in these columns, has been withdrawn. Conferences have settled all conflict in the provisions of the bills.

Yolo Wants Stock Show.

Yolo stockmen are making an active campaign for an annual stock show at Woodland. There are probably more purebred stockmen in the vicinity of Woodland by a big margin than in any other



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district of the same size in California, and such a show would attract State-wide attention. Not only are there lots of pure-bred stock, but stock of all kinds and of out-standing merit. The promoters of the plan have petitioned the supervisors to purchase a tract of about 25 acres of land upon which the show can be held, as well as other public meetings.

Lively Boosting by Lively.

D. O. Lively, live stock commissioner of the Panama-Pacific Exposition, is touring the Middle and Eastern States and interviewing the members of the various State legislatures with the object of interesting them sufficiently in the live stock end of the Exposition to vote suitable appropriations to enable the breeders of their State to send creditable exhibits of live stock to the great 1915 fixture. Reports are said to have been received from Mr. Lively which indicate that his mission is meeting with gratifying success.

Big Cattle Corporation.

The San Joaquin Land and Cattle Co. has filed articles of incorporation. This is the concern organized a few months ago to purchase a large portion of the Chowchilla ranch in Madera county, and there are interested in the same, James W. Goodwin, Edward H. Howard, R. E. Easton and several other large stockmen. There are 66,000 acres in the property to be kept, indicating that the "back to the farm" movement has got to go for a while before it can entirely overcome the range cattle business.



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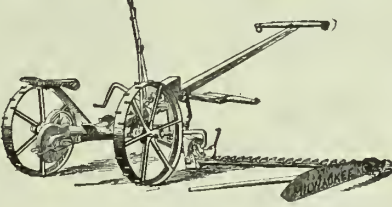
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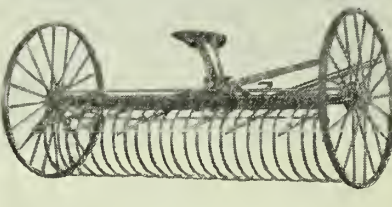
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Portland Market Going Up.

The market at the Portland Stockyards continues to go up. Several sales of hogs were recently made at \$9.25, and the bulk of sales for some time was about \$9 to \$9.50. Cattle also went at good prices. Prime heavy steers went to the killers for \$7.75 to \$7.85, bulk \$7.30 to \$7.60. Sheep were coming in in large supply, but met a firm market. The best load of wethers sold at \$5.85, and ewes at \$4.50.

Fine Rice Outlook.

That rice-growing has come to California to stay seems sure from development in the upper Sacramento valley. The Hedegard Bros., rice-growers from Texas, have leased 800 acres near Richvale which they will plant largely to rice, and other former Texans are securing smaller amounts. Altogether, in the northern Sacramento counties it is stated that several thousand acres will be planted to rice this season.

The first tractors ever used on the Stanford University ranch at Vina have arrived and been set to work.

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An Engagement That Was Kept.

There was a slight tap on the door and Miss Hardaway entered the library with a little rush. She looked anxiously around and then made a step towards me. I dropped my Kinglake on my knee and looked at her. Evidently she had come on some pressing business. She looked rather excited, also a trifle nervous. "Mr. Tyson?" said she. "Miss Hardaway?" said I. "I—I want to have a talk with you about—about something which—" she hesitated. "Certainly," I responded, amiably; "won't you sit down?" She sank into a chair opposite me with dubious eyes. "I hope you won't think it extraordinary of me," she said, in a short stammer, "but I wanted your assistance." "If I can do anything," I observed, to reassure her, "command me." She averted her eyes and fidgeted with a book on the table. "You see," she explained, "it's rather dreadful." "Good," said I, "things are so flat as a rule." "You will probably say no at once," she went on, "and I'm sure I don't blame you." "I should like to have the opportunity, at any rate," I said, with a smile. She started, and half rose in her chair. "I'm afraid I've interrupted you in your reading," she exclaimed. "I—I only came in on the impulse. It's really nothing." "Now," said I, lying back in my chair benignly, "you positively fire my curiosity." "No," she said, shaking her head, "it was nothing. I only—" I leaned forward and touched her arm. "Miss Hardaway," I said, earnestly, "what! you would rob a poor old foggy of his only consolation—that of advising others? Fie! I think you owe me something for the studious way in which you have avoided me lately."

It seemed that I couldn't have said anything more to the point, though heaven knows I had no idea what the dear girl wanted. "No, indeed! If you only knew! That's what—" Here she came to an abrupt pause. "I should very much like to know what that is," I said, after waiting a moment. I suppose I looked at her kindly—perhaps I beamed benevolently; old fogys do. At any rate she seemed to take courage, and sank once more into the depths of the armchair. "I have been very much worried lately," she exclaimed, with a sigh. I nodded comprehensively. "It—it was that that made me come rushing here," she went on. "I—I was determined not to stand it any longer." I waited politely. "It's that young Mr. Urquhart," she said, with an appealing glance at me, as if I should now understand all. I understood nothing, but I lifted my eyebrows. "Really?" I punctuated. "Yes," she resumed, taking fresh courage. "He is a frightful nuisance. He follows me about everywhere." She paused; and as I seemed to be expected to say something, I remarked that it was very impertinent, and that he ought to know better. "You see," said Miss Hardaway, "my aunt wants it." I really did not comprehend what her aunt wanted, but I did not say so. I only pinched my expression into greater intelligence and sympathy. "And now that we are down here, he takes the opportunity of—of pestering me and—and, well, Aunt Catherine encourages him." "Ah!" said I, pulling my mustache, "that makes a difficult situation, doesn't it?" "And I thought you might help me," she ended, with a plaintive shot from her eyes.

"I, my child?" I asked, in wonder. "But how? I should be delighted, if I knew." Miss Hardaway said nothing; she appeared to have exhausted her confidence, and sat tremulously in the armchair as if she would like to leave it.

"Tell me how you thought that I could help you?" I said. "Shall I take him away and drown him?" "O, no!" she exclaimed eagerly. "I didn't mean that. Of course, I did not suppose that she did mean that. "Well, what was your idea?" I asked. "You see," began Miss Hardaway, "it is difficult for me, with Aunt Catherine as my chaperon. And she likes Mr. Urquhart." "Of course it is," I assented. "Well, do you want me to chaperon you? It that it?" Now I examined her; she was really a very pretty girl, and particularly so when she blushed. She blushed now as she said, "You see, Mr. Tyson, I thought—it was impertinent of me—but you know I was driven out of my senses by the stupid—by things. And I thought, perhaps,"—she hesitated. "You are a great deal older than I am, aren't you?" "Bless you, yes," I answered. "Twenty years, at least. I might be your father." All the same it was not so nice to feel that, somehow. But Miss Hardaway was relieved—eased over her difficulty, perhaps I should say. "Yes, I thought so, and that was what made me so rude as to think that you—that I—that we might pretend you know," she stammered. "I will pretend anything you like, child," I declared. "Will you really?" she asked eagerly. "Certainly," I answered. "That we are engaged?" she asked, hanging on my words.

I will confess that I was somewhat staggered, but in a second I chuckled to myself. "Most ceterarily," I said. Miss Hardaway's face looked gratitude. "I knew you would be kind," she remarked. "Then that will get rid of him, you see," she added. "Yes, I suppose it will," I assented. "Then that's all settled," said she, rising suddenly to her feet, "and now I must go. It is so good of you Mr. —." "But stay," I interrupted, rising also. "Let us understand what our program is to be. You will tell Aunt Catherine?" "I am going to tell her now," she said firmly. "And—and what are we—how are we—" "O, you must walk about with me a good deal," she said. "But won't that rather bore you?" I asked depreciatingly. "O, no," said Miss Hardaway, frankly. "I like you: besides, it's better than Mr. Urquhart." The compliment was not strained. "And I am to call you—" I queried. "O, you must call me Hetty," she returned promptly. "And you must call me—" I began. "O, I think I'll call you just Mr. Tyson," she observed after a pause. "But do you think—don't you think—" Miss Hardaway considered, frowning. I don't think I can call you—what is your name, Mr. Tyson?" she asked. "Paul," said I meekly. "I know it's not a nice name." "O, it's not so bad," she said reassuringly, "only—all right. I'll call you that, and now—" "But is there nothing else?" I asked. "Are you sure we musn't do anything else?" "O, no," said Miss Hardaway, confidently; "we're just engaged, you know," and with a flutter of her gown was gone. The bargain was plain enough, but I was not quite sure how it would turn out in practice. Yet it seemed to answer well enough, as far as she was concerned. My services were in requisition the very next day. "We must keep up appearances," she explained. It was very pleasant on the cliffs, and there we met Mr. Urquhart walking. I hastily seized her hand, but she drew it away from me with decision. "Don't," she said. "I thought I had to do something," I observed humbly. "O, no," she said, in a vexed voice. "Don't you see, there's no need now?" I didn't see, but I took her word for it. All the same, I regretted that there was no need; I had had no idea that she was such an attractive girl. It appears that only Aunt Catherine and Mr. Urquhart were supposed to know, but I was sure the whole hotel was in the secret. I came to this conclusion from



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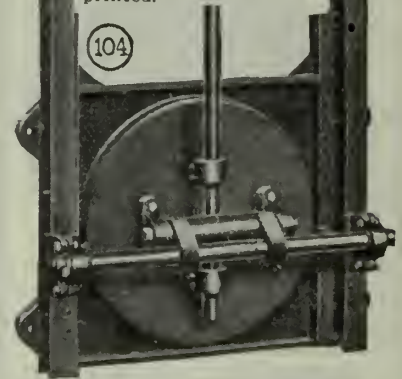
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Put the bucket, half filled with water, where the rats will find it, and put enough oats on the water to completely cover it, making it to all appearances a bucket half filled with oats. In order that the rats will have no difficulty in finding it, place it by the side of a box, a sack or lean a board up against it. Then Mr. Rat comes along, investigates, sees the oats down below his reach and jumps down to get good feed, which turns out to be drink instead of feed and when morning comes if Mr. Rat is not dead he soon can be made so.

the persistent way we were left together. If we were seen in each other's company we were conscientiously avoided, and people indulgently left the room in order that we might exchange confidences. Miss Hardaway noticed this at last; she did not seem to have anticipated it.

"What do they do that for?" she asked, pettishly. "O, they suppose we want to be left alone," I answered, cheerfully. "How foolish!" said Miss Hardaway, frowning. "Don't you want to go to your books?" she said, suddenly. I did not, but I took my dismissal and went. Later that day Miss Hardaway sought me. "I think, Mr. Tyson," said she, "that we had better stop this pretense now. It has served its turn." "Well," said I, "if you are quite that sure that Mr. Urquhart and Aunt Catherine will not resume—" She shook her head. "I am not afraid of that," she said, boldly. "Very well," said I; "then we had better think out a way. Of course, the engagement must be broken. But who is to do it?" "I, of course," said Miss Hardaway, in surprise. I passed the paper knife between my fingers reflectively. "That is, of course, the proper way," I answered, "but it may leave you open to difficulty. You see, if you break with me people will believe that you never really cared for me, and that will encourage Mr. Urquhart and Aunt Catherine." She bit her lips. "I never thought of that," she said. "Then you must break it." "Yes, I must break it, but on what grounds?" I asked. "Couldn't you really say that you made a mistake and really cared for someone else?" she inquired. "But I don't—I mean, would that be fair to you, you see?" Miss Hardaway puckered her brow. "Put it on the ground that I interfere with your work," she suggested, "and that you are wedded to that." "But you don't," I objected; "and, besides, I don't care if you do; and, goodness knows, I don't want to be wedded to that always." This apparently, was a new idea, for she regarded me earnestly for some moments, and I believe she was examining the lines on my face. "I am not so very old," I murmured. Miss Hardaway made no reply, but glanced out of the window; then "I shall tell Aunt Catherine that it was broken off on account of your work," she said pensively. "I shall deny it," I protested; "I don't see why it should be broken off at all." After a minute's silence she said in a lower voice, "It's such a nuisance to you." "It isn't," I declared. "I don't mind. I—let it go on. I'm not so very old, and it's the only time I shall be engaged. Let me enjoy it while I can." Miss Hardaway was silent. "Come," said I, taking her hand, "you wouldn't grudge me a little pleasure would you?" Miss Hardaway laughed, a self-embarrassed little laugh. "Pleasure?" she echoed. "Certainly," said I, promptly; "a pleasure which, alas! can never be more than a shadow for an old foggy like me." She looked at me timor-

ously. "I don't think you're an old foggy," she said. I made to draw her nearer, but she disengaged herself and slipped gently to the door. On the threshold she paused. "I—I won't say anything to Aunt Catherine," she said, with a pretty little laugh.

Household Hints.

Pumpkin and squash seeds make splendid bait for rats and mice. Put some in the traps—you won't need any poison around.

Cayenne pepper will drive away mice.

Is your shoe tight? Put a little sweet oil on the place where it pinches, outside and inside both.

Frost glass with a strong mixture of epsom salts and vinegar. Apply with a brush.

Before retiring give the tired feet a good soaking in hot water with salt in it.

Little pads of cotton carrying vaseline, tucked between troublesome toes or plastered on the surface of the foot anywhere that there is trouble, simply work wonders.

To overcome the habit of an open mouth at night, get ordinary silk court plaster and cut into pieces about one-fourth inch by one and a half inches and paste two strips over his mouth. If there is some obstruction causing mouth breathing, consult a physician at once.

Scientists agree that buttermilk is a most wholesome drink.

The New York Academy of Medicine recently devoted a session to the discussion of trained nurses. It was said that there is now a scarcity of good material for the training schools, and a greater demand for nurses than can be supplied, in spite of fees that are prohibitive to people of modest means. The doctors in session reported that the greatest danger to the public comes from nurses trained in correspondence schools. We were informed some time ago by persons in charge of a high-class registry bureau in this city that they would not register nurses who had received their training by correspondence, but one of the promoters of a correspondence school was reported as saying that 90 per cent of the nurses in the State were trained in this way. Let none imagine that nursing is an easy and luxurious life; it involves much that is hard, disagreeable, and sometimes revolting, and excellent salaries become small if the nurse has several lengthy intervals between cases. However, it possesses many excellent features, and a healthy country girl, who has gone through high school, and feels drawn to the work, will find it the proper opening for an honorable and useful livelihood. Further than that, the training she would receive as a nurse would make her better fitted for the emergencies of domestic life, which cannot be said of all occupations open to women.—Rural New Yorker.

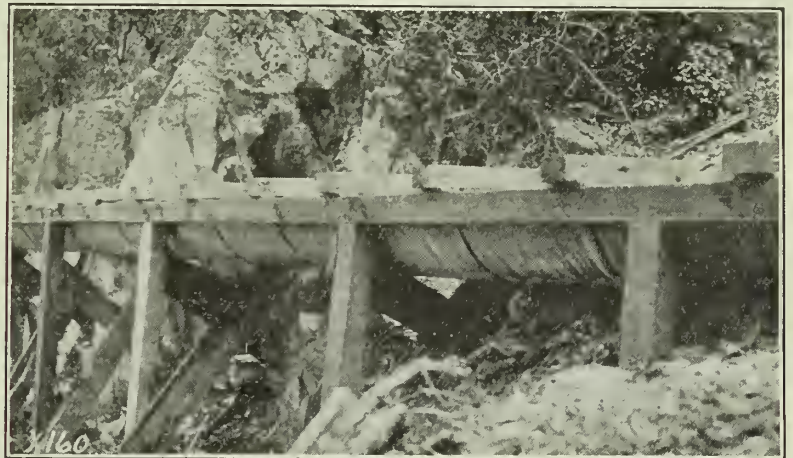
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alone will pay for your farm. Six cuttings per year, averaging twelve tons to the acre—and then will fatten your hogs and cows during the two months' pasturage.

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DEPARTMENT F, 23 MONTGOMERY ST., SAN FRANCISCO.

"CALIFORNIA FRUITS AND HOW TO GROW THEM"

For sale by **PACIFIC RURAL PRESS**, 420 Market Street, San Francisco

THE MARKETS.

San Francisco, March 19, 1913.

(Unless otherwise noted, quotations represent prices paid to the growers.)

Cereals.

WHEAT.

Trading is confined to narrow limits in the local market, supplies being sufficient, though the firmness of prices in the north holds this market fairly steady.

California Club	.....\$1.57½ @ 1.60
Sonora	..... Nominal
White Australian	..... Nominal
Northern Club	..... 1.57½ @ 1.60
Northern Bluestem	..... 1.67½ @ 1.72½
Northern Red	..... 1.57½ @ 1.72½

BARLEY.

The rain has caused some weakening, and some sales have been made at lower figures, but at present prices are pretty well held as last quoted. Buyers are inclined to hold off, as more rain might bring a decline.

Brewing and Shipping	...\$1.45 @ 1.50
Choice Feed, per ctl.	..... 1.30 @ 1.35
Common Feed	..... Nominal

OATS.

There has been a little more movement of red oats than for some weeks past, but on the whole the market is very quiet, prices being steady as last quoted.

Red Feed	.....\$1.75 @ 1.85
Seed	..... 2.00 @ 2.10
Gray	..... Nominal
White	..... 1.45 @ 1.50

CORN.

Values show no change, and there is no heavy trading locally in either Eastern or California corn, though the Eastern varieties show some firmness in value.

Cal. Yellow	..... \$1.45
Eastern Yellow	.....\$1.45 @ 1.50
Eastern White	..... Nominal
Kafir	..... 1.50 @ 1.55
Egyptian	..... 1.70

RYE.

Prices are unchanged and largely nominal, with no demand of any consequence.

Rye, per ctl.\$1.45 @ 1.50
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BEANS.

There has been no change whatever in prices since last week. Recent market developments have been rather disappointing, as the expected activity has not materialized, and the shipping movement is even lighter than for the last few weeks. The dullness may be due in part to improved crop prospects since the rain. Local dealers, however, show no disposition to press their goods on the market, and prices remain steady in practically all lines, as a renewed demand is expected before long.

Bayos, per ctl.	.....\$3.25 @ 3.45
Blackeyes	..... 3.15 @ 3.25
Cranberry Beans	..... 4.70 @ 5.00
Horse Beans	..... 2.25 @ 2.35
Small Whites	..... 4.65 @ 4.75
Large Whites	..... 4.20 @ 4.35
Limias	..... 5.40 @ 5.50
Pea	..... Nominal
Pink	..... 3.70 @ 3.90
Red Kidneys	..... 4.00 @ 4.25
Mexican Red	..... 4.00 @ 4.20

SEEDS.

All descriptions remain quiet and prices remain steady as for some time past.

Alfalfa	..... 15 @ 16 c
Broomcorn seed, per ton	...\$29.00 @ 30.00
Brown Mustard, per lb.	..... 3½ c
Canary	..... 5½ @ 6 c
Hemp	..... 3 @ 3½ c
Millet	..... 2½ @ 3 c
Timothy	..... Nominal
Yellow Mustard	..... Nominal

FLOUR.

All grades are steadily held at the same prices as for some time past, the movement in the local market being normal for this season.

Cal. Family Extras	.....\$5.60 @ 6.00
Bakers' Extras	..... 4.60 @ 5.20
Superfine	..... 3.90 @ 4.10
Oregon and Washington	..... 4.90

Hay and Feedstuffs.

HAY.

This week's rain came at a most critical time for the hay crop, and while it is too early to tell what effect the shower will have, there is no likelihood of any further advance, and values may weaken. The rain was well distributed, being heaviest in the northern Sacramento valley, though the principal hay districts, around Hollister and Livermore, had about three-quarters of an inch, and

there was a fair precipitation in the Salinas and San Joaquin valleys. More liberal offerings are expected from holders in the country, and as the demand here is very light no heavy movement is expected. Arrivals for the last week have been very light, but were about equal to the demand, and values show no change.

No. 1 Wheat, or Wheat and Oat	.....\$18.00 @ 20.50
do No. 2	..... 15.00 @ 18.00
Lower grades	..... 12.00 @ 14.50
Tame Oats	..... 15.00 @ 20.00
Wild Oats	..... 12.00 @ 16.50
Alfalfa	..... 10.50 @ 13.50
Stock Hay	..... 9.00 @ 10.00
Straw, per bale	..... 35 @ 75c

FEEDSTUFFS.

The demand is light for practically all lines of feed, and the general tone of the market is easy, several lines being lower. Alfalfa meal has dropped off from the recent advance, and bran and cracked corn are both lower.

Alfalfa Meal, per ton	.....\$19.00 @ 20.00
Bran, per ton	..... 24.00 @ 25.00
Oilcake Meal	..... 35.00 @ 36.00
Cocoanut Cake or Meal	..... Nominal
Cracked Corn	..... 31.00 @ 32.00
Middlings	..... 33.00 @ 34.00
Rolled Barley	..... 27.00 @ 28.00
Rolled Oats	..... 33.00 @ 34.00
Shorts	..... 28.00 @ 29.00

Garden Truck.

VEGETABLES.

River onions continue easy, and arrivals from Oregon, though bringing better prices, find no great demand. Garlic also remains cheap. The principal feature in the garden truck situation is the increase in offerings of asparagus, which is now fairly plentiful and rapidly declining in value. With lower prices the demand is also growing, but difficulty is frequently encountered in cleaning up the day's arrivals, an occasional shipping order helping to steady the market. Rhubarb also is considerably lower, though prices are fairly steady at the moment, with no great surplus over requirements. Green peas are fairly well maintained, as arrivals are increasing slowly and surplus lots can usually be sold for shipment. Celery has dropped again to a low level, with large supplies of poor stock, and southern lettuce is also lower. Artichokes are abundant and easy. Egg plant shows a further decline, while tomatoes and cucumbers have taken a sharp jump.

Onions: River Yellow, ctl.	..... 50 @ 65c
Oregon, per lb.	..... 75 @ 90c
Garlic, per lb.	..... 1¼ @ 2c
Tomatoes, per box	.....\$1.75 @ 2.00
Cucumbers, per doz.	..... 1.25 @ 1.50
Cabbage, per ctl.	..... 40 @ 50c
Carrots, per sack	..... 50c
Cauliflower, per doz.	..... 50 @ 60c
Celery, crate	..... 75c @ 1.50
Rhubarb, box	..... 1.25 @ 1.75
Mushrooms, lb.	..... 15 @ 25c
Artichokes, doz.	..... 30 @ 75c
Sprouts, lb.	..... 7 @ 8c
Green Peppers, lb.	..... 20 @ 30c
Lettuce, crate	..... 1.00 @ 1.50
Eggplant, lb.	..... 10 @ 15c
Green Peas, lb.	..... 10 @ 13c
Asparagus, lb.	..... 5 @ 7c

POTATOES.

Old stock is still neglected and drags badly at the old prices. Choice lots of new potatoes are higher, with only light offerings and a strong demand. A few new garnet chiles have appeared and found buyers at 6c.

River Whites, ctl.	..... 35 @ 50c
Salinas, ctl.	.....\$1.00 @ 1.25
Oregon, ctl.	..... 65 @ 1.00
Sweet Potatoes	..... 2.25 @ 2.50
New Potatoes, lb.	..... 5 @ 7c

Dairy Produce.

POULTRY.

The poultry market remains in decidedly good shape for sellers, all descriptions being firm at fully as high prices as last week, while large and extra hens are held at a slight advance. Very little is arriving from California points, and with only a few cars each week from the East, the market is kept well cleaned up. There has been an extra demand for Eastern for the last few days, and supplies have been hardly equal to requirements.

Large Broilers, per lb.	..... 26 @ 30 c
Small broilers, per lb.	..... 28 @ 35 c
Fryers, per lb.	..... 25 @ 27 c
Hens, extra, per lb.	..... 17 @ 18 c
Hens, large, per lb.	..... 17 @ 18 c
Small Hens, per lb.	..... 16 @ 17 c
Old Roosters, per lb.	..... 10 @ 12 c
Young Roosters, per lb.	..... 22 @ 25 c

Squabs, per doz.	.....\$3.00 @ 3.50
Geese, per pair	..... 1.50 @ 2.00
Ducks, doz.	..... 4.00 @ 6.00
Turkeys, dressed	..... 22 @ 24 c

BUTTER.

Arrivals have been running a little larger for the last few days, and prices are 2c lower for extras than at the end of last week. The market is firm at the present level, however, and no further decline is expected at present.

Thurs. Fri. Sat. Mon. Tu. Wed.	
Extras	...36½ 37 37 35½ 35 35
Firsts	...34½ 34½ 34½ 34½ 34½ 34

EGGS.

The price of 19c for extras was maintained to the first of the week, but a good many dealers have had stock to carry over, and continued large arrivals from the country have caused a slight decline. Buying for storage has been slightly curtailed, but will doubtless be resumed shortly. All grades are steady as now quoted, and no great change is expected.

Thurs. Fri. Sat. Mon. Tu. Wed.	
Extras	...19 19 19 19 18 18
Firsts	...17½ 17½ 17½ 17½ 17½ 17½
Selected	
Pullets	...17 17 17 17 16 16

CHEESE.

The market shows little fluctuation, although fancy flats are rather weak at the old prices, while Monterey cheese shows a fractional advance at the inside figure.

Fancy California Flats, per lb.	..... 15½ c
Firsts	..... 15 c
New Young Americas, fancy	..... 18½ c
Monterey or Jack Cheese	..... 16½ @ 17½ c

Deciduous Fruits.

Southern strawberries are not yet coming in with any regularity, occasional lots finding sale at about 40c per small basket. The apple market is in very poor shape, with heavy stocks and considerable deterioration in the fruit, though prices in the local trade show little change. Some dealers are picking over their apples in the hope of realizing better prices for sound lots.

Strawberries: Southern, bskt	..... 40c
Apples: Fancy Red, box	..... 75c @ 1.10
Bellefleur	..... 65 @ 90c
Newtown Pippins, 3½ to 4-tier	..... 65c @ 1.35
Common	..... 40 @ 60c

Dried Fruits.

A number of changes have been made in dried fruit prices in the last week, due mainly to a slightly increasing demand, the movement for some time previous having been too light to establish values very well. Apricots are nominal, being entirely out of growers' hands, although a limited stock is held by packers at firm prices. The same is true of figs, which are in small supply everywhere. Holders of apples are becoming discouraged at the total lack of demand, and some have been pressing their stock for sale at a further decline. Prunes are rather firmly held, and with better inquiries packers have raised their offer for good stock. Some ordinary lots of peaches have been sold at lower prices, but fancy stock is scarce and firmly held. Both Muscatel and Thompson raisins are higher, as the price-quoted has been offered by the Associated Raisin Co., and packers are now meeting these figures, though no important Eastern demand is reported. The New York Journal of Commerce says: "Although there is no large demand for any variety of California fruits on the spot or shipment from the Coast, the jobbing movement is increasing and the spot market shows a better tone. There is no quotable improvement in prices, but the disposition to make concessions is less pronounced."

"In prunes the movement is confined for the most part to large sizes. Nearly every buyer wants 40s, but as a rule they are reluctant to pay the higher prices asked. Some of them are transferring their attention to 50s, and that size as well as 60s is said to be moderately active in a jobbing way, with the result that the market for them has a firmer tone."

"Apricots are firm, as the outlook for the coming crop is held to be uncertain owing to recent cold weather and absence of sufficient moisture. On the spot the demand in a jobbing way is showing some improvement and a somewhat firmer feeling prevails."

"Peaches on the spot here are moving steadily into consumption in small lots at the quoted prices. Interest in offerings for forward shipments from the Coast is slack, but holders are not try-

ing to force business and maintain the prices on the basis heretofore quoted.

"There is nothing doing in raisins of any kind on the spot or for shipment from the Coast."

Evap. Apples, per lb.	..... 3 @ 4c
Apricots	..... Nominal
Figs: White	..... Nominal
Black	..... Nominal
Calimyrna	..... Nominal
Prunes: 4-size basis	..... 2½ @ 4c
(Premium: 1c for 40s-50s; 2c for 30s-40s.)	

Peaches	..... 3½ @ 4½ c
Pears	..... 4 @ 7 c
Raisins—	
Loose Muscatels in sweatbox	..... 2½ @ 2¾ c
Thompson's Seedless	..... 5 c
Seedless Sultanas	..... 3 @ 3½ c

Citrus Fruits.

The citrus markets of the East are in much better shape now than at any time since the first of the year. Fruit is moving in larger quantities from southern California, and with recent rains the ranchers in that section are feeling better than any time since the frost.

At the fruit auction held in New York on Monday, March 17th, oranges brought from \$1.30 up to \$3.45 per box on car averages. At Boston on the same day, navel sold from \$2.05 up to \$4.60 per box, and at Cleveland one car averaged \$3.60 to \$3.95.

Lemons are still bringing good prices, and at the Cleveland auction last Monday they averaged \$4.10 to \$4.85 per box.

Shipments are going East at the rate of about 70 cars of oranges and 8 cars of lemons per day. Total number of cars shipped to March 16th from the southern California groves was 6374 cars of oranges and 859 cars of lemons, as against 9059 of oranges and 1577 of lemons to same date last year.

All citrus fruits find a fair local demand, and supplies at present are liberal, as the trade has been taking on extra supplies in expectation of higher prices in the primary markets. Fancy navel oranges and standard lemons are a little higher, "lemonettes" being firm at the old prices.

Oranges, per box—	
Navels, good to fancy	...\$2.00 @ 3.75
Frosted	..... 50c @ 1.00
Grapefruit, seedless	..... 2.00 @ 4.00
Lemons: Fancy	..... 6.50 @ 7.00
Choice	..... 5.00 @ 6.00
Standard	..... 4.00 @ 5.00
Lemonettes	..... 5.00 @ 5.50

Nuts, Honey, Hops, Etc.

NUTS.

Prices are little more than nominal, as no old stock is left in growers' hands and dealers' stocks are light. New crop prospects are still very uncertain.

Almonds—	
Nonpareils	..... 17½ c
I X L	..... 16½ c
Ne Plus Ultra	..... 15½ c
Drakes	..... 12½ c
Languedoc	..... 11½ c
Hardshells	..... 8 c
Walnuts, 1912 crop—	
Softshell No. 1	..... 16 @ 16½ c
Hardshell No. 1	..... 15 @ 15½ c
No. 2	..... 10½ c
Budded	..... 17 c

HONEY.

The local situation shows little change, off grades being in ample supply with little demand, while first-class stock is scarce and firm.

Comb, white	..... 14 @ 16 c
Amber	..... 11 @ 12 c
Dark	..... 9 @ 10 c
Extracted, white	..... 8 @ 10 c
Amber	..... 6½ @ 7 c
Off Grades	..... 5 @ 6 c

BEESEWAX.

The local demand is on a limited scale, but the market remains very firm in response to a recent buying movement in the East, and very little is coming in. Quotations represent prices asked by local handlers, but supplies in the country would sell up to 30c.

Light	..... 32 @ 33 c
Dark	..... 26 @ 28 c

HOPS.

Values are firm, as there is some demand and the limited supply remaining from the old crop is closely held, although there is very little movement in this vicinity.

1912 crop 12½ @ 21c
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WOOL.

The larger consuming markets are dull, speculative operations being prevented by the prospect of tariff revision. Prices

here are altogether nominal, as buyers have not yet made any purchases from the spring clip.

Fall Clip:

Northern and free Mendo-	
cino	10 @11 c
Lambs	8 @11 c
San Joaquin and Southern. 6	@ 8 c
Mohair	15 @28 c

HORSES.

Arrivals have been fairly large in the last week, and while only a little heavy stock was received, prices realized at the auctions have been more satisfactory than at the previous sales. The most favorable indication is the increased interest shown by buyers. Quite a lot of stock of the lighter and medium weights from Oregon is offered this week. More rain would doubtless bring out a strong demand from both local and country buyers, but meanwhile the prospect of getting good prices on large shipments is very uncertain.

Heavy drafters, 1700 lbs. and over	\$300@350
Light Drafters, 1500 to 1650....	250@285
Chunks, 1350 to 1500 lbs.....	200@255
Wagon Horses, 1250 to 1350....	180@220
Delivery Horses, 1050 to 1250...	125@150
Desirable Farm Mares.....	100@125

MULES.

1200 lbs.	\$200@250
900 lbs.	75@125
1100 lbs.	150@200
1000 lbs.	125@175

Live Stock.

Arrivals of live hogs have been light, and with a better demand from the packers, prices show a sharp advance. Spring lambs are now offered, bringing a substantial premium over yearlings. Dressed beef is higher.

Steers: No. 1	7 1/4 @ 7 1/2 c
No. 2	6 1/2 @ 7 c
Cows and Heifers: No. 1....	6 1/4 @ 6 1/2 c
No. 2	5 1/2 @ 6 c
Bulls and Stags.....	2 1/2 @ 4 1/2 c
Calves: Light	7 1/2 @ 8 c
Medium	7 @ 7 1/2 c
Heavy	5 1/2 @ 6 c
Hogs: Grain-fed, heavy.....	8 1/4 @ 8 1/2 c
150 to 250 lbs.....	8 1/2 @ 8 1/4 c
100 to 150 lbs.....	8 1/4 @ 8 1/2 c
Prime Wethers	5 1/4 @ 6 1/4 c
Ewes	5 1/4 @ 5 1/4 c
Lambs: Yearling	7 1/2 @ 8 c
Suckling	8 1/2 @ 9 c

DRESSED MEATS.

Steers	11 1/2 @12 c
Cows	11 @11 1/2 c
Heifers	11 @11 1/2 c
Veal, large	10 @11 c
Small	12 @13 c
Yearlings	12 @12 1/2 c
Mutton: Wethers	10 1/2 @11 1/2 c
Ewes	10 @10 1/2 c
Spring Lambs	13 @14 c
Dressed Hogs	12 1/2 @13 c

HIDES.

The hide market shows little change, the demand in most lines being rather light, with prices fairly steady as before.

Prices show little variation, being fairly well maintained at the former level, although there is no great demand at the moment.

Heavy Steers, over 56 lbs.	14 c
Medium	13 c
Light Steers, under 48 lbs.	12 @13 c
Heavy Cows, over 50 lbs..	12 @13 c
Light Cows, 30 to 50 lbs..	13 1/2 c
Kip	@15 c
Veal	@18 c
Calf	@18 c

Dry—	
Dry Hides	23 @24 c
Dry Kip, 10 to 15.....	24 @25 c
Dry Veal, 5 to 10.....	29 c
Dry Calf, 7 down.....	29 c

Horse Hides—	
Salt: Large	\$2.25
Medium	1.75
Small	75c
Colts	25 @ 50c
Dry	75c @ 2.00
Sheep Skins—	
Long Wools	\$ 0.85 @ 1.25
Medium Wool, 6 to 9 mos..	60 @ 90c
Short Wool, 3 to 6 mos...	40 @ 60c
Lambs	35 @ 70c

Ship your **POULTRY, EGGS, HONEY, DRIED FRUIT, RAISINS, NUTS, DRESSED CALVES**, and Produce of all kinds to the old Reliable firm of **W. C. PRICE & CO., 211, 213, 215 Clay St., San Francisco, Cal.**

Highest market prices and immediate cash returns guaranteed. Liberal advance made on all shipments. Consignments and correspondence solicited. Write us before shipping elsewhere.

PUBLISHER'S DEPARTMENT.

The announcement in another department of this issue by W. M. Carruthers will be of interest to stockmen. Mr. Carruthers now has on the road to California eight cars of pure-bred stock for his patrons, and his ambition is to bring a trainload in the next shipment he expects to make in the summer. Lots of new fine blooded stock is coming into the State, and it will be but a short time till our breeders will have the show stock of the West.

The rains of this week have been of great value to the State, and with a few more such downpours a good season will be enjoyed by all. The marvelous thing at this time is the great amount of orchard and vineyard planting that has been done in California this winter in the face of a threatened dry season. Prunes, plums, walnuts, almonds, and wine grapes have been set out in especially large quantities.

Regarding the third edition of "California Vegetables," which is being revised and largely rewritten by Prof. Wickson, we have hopes of getting orders filled in a short time. A large part of the copy has been completed by the author, and he is using every bit of the time he can command in the work, but to get the facts and latest data is not always easy, and that has caused the delay in publishing. Orders for the book in large numbers have been received and are on file to be filled in sequence as soon as they come from the printer.

CURED FRUIT EXCHANGE BULLETIN

A bulletin from the California Cured Fruit Exchange, dated at Sacramento, March 18th, states:

"We are pleased to report a stronger feeling in the dried fruit market, especially in prunes. There is no particular advance in price yet, but much more inclination to buy than for several months. This Exchange has sold more than its percentage of spot fruit in the last three weeks. We are just egotistical enough to believe that our letters in February to our 150 brokers and all wholesale grocers of the United States have had the effect in strengthening prices and in causing the East to begin to realize what effect our extreme dry weather may have on the coming crop. In proof of this, the New York Journal of Commerce, one of the most prominent trade papers, confirms what we said in those letters and indicates that the effect will be to advance prices on dried fruit.

"The Legislature is now in session and action will soon be had on the proposed 8-hour law. This is something that every producer of fruit is positively interested in, and should see that his Assemblyman and Senator understands his interest in the matter. The 8-hour law is all right for people who work all the year, but those who work by piece work in the fruit for two or three months in the year much prefer to work longer hours and rest the remaining months of the year. Again, when perishable fruit is ready to handle, it is to be handled at once, and will not stop ripening when the 8-hour day ends. The positive effect of the proposed 8-hour law would be to curtail the incomes of the working class, because it would necessitate either a largely increased addition to the workers in perishable fruits or else greatly increased expense to the grower; the latter is simply out of the question, and whatever fruit cannot be handled at present expenses would have to go to waste, and this would spell ruin for a large portion of the growers in the State. Moral: Get busy."

Prices of Farm Products.

The Bureau of Statistics gives the following prices for farm products at the farm for March 1, 1913, for the country at large: Corn, \$0.522 per bu.; wheat, \$0.806; oats, \$0.331; barley, \$0.489; potatoes, \$0.520; hay, \$11.34 per ton; butter, \$0.275 per lb; eggs, \$0.194 per dozen. The prices for horses, milch cows, hogs, sheep and lambs all went up a good

amount during the year. The Crop Reporting Board of the Bureau of Statistics estimates that the amount of wheat on farms March, 1913, was about 156,483,000 bu. or 21.4% of the 1912 crop.

CLASSIFIED ADVERTISEMENTS.

Rate 2c. per word. No order for less than 25c. per week. If you have anything to sell, or want anything, use these columns.

HELP WANTED.

Middle-aged man as general hand on small farm; steady job; some experience. Box 14, Pacific Rural Press.

WANTED—A good lath-house man who understands propagating acacias, eucalyptus, etc. A good proposition for the right man. KIRKMAN NURSERIES, P.O. Box 604, Fresno, Cal.

WANTED

WANTED—A Byron Jackson 5-inch vertical pump; state condition and price. P.O. Box 38, Linden, Cal.

SACKS WANTED—Farmers, stockmen, get the most for your sacks. Send sample by parcels post if possible. Agents wanted. H. EPSTEIN BAG CO., 3176 Mission St., San Francisco.

A practical farmer of 40 wants to lease a small well-equipped fruit or alfalfa ranch on a crop rental basis with privilege of buying the ranch on easy terms. Has no cash capital, but can offer in part payment a \$1650 equity in his new six-room home worth \$4500 in Oakland. Jas. O. Stewart, 2212 Magee St., Berkeley, Cal.

POSITIONS WANTED

EXPERIENCED JAPANESE citrus culturist desires a position in citrus nursery or to take care citrus orchard in northern citrus belt, viz.: Butte, Glenn, Sonoma or Placer county district. Have experience in southern and central citrus belt of California and also citrus belt of southern Texas. Have references. M. Yagi, 1825 Sutter St., San Francisco, Cal.

TREES AND NURSERY STOCK.

AVOCADOS (budded), Feijoas, Cherimoyas, and other subtropical fruiting plants and trees. We have the largest and finest stock of budded avocados, and the best varieties. We grow only subtropical fruits of proven adaptability and sterling merit. Send for pamphlet. WEST INDIA GARDENS, Altadena, Cal.

Large Imported German Pansies. Beautiful colors, well assorted plants, come in three sizes, \$3.00, \$2.00, and \$1.50 per 100. Postpaid. Send money orders payable to Endor Floral Gardens, 320 Market St., San Francisco, Cal.

FOR SALE—Florida sour orange seed. Order now while we have plenty. They will be higher later on. We also have grafted walnut trees, both black and soft root. Orange County Nursery, 6th and Main, Santa Ana, Cal. Red 3891.

FEIJOA—This superb new fruit is hardy all over California. Sure to be one of our great commercial fruits. Write for prices. COOLIDGE RARE PLANT GARDENS, Pasadena, Cal.

NURSERY TREES, fruit and ornamental. Nearly all varieties to be seen on our experimental place near State highway. LEONARD COATES NURSERY COMPANY, Morganhill, California.

WALNUT TREES—Late varieties, grafted and budded on hybrid root—Eureka, Franquette, Mayette, Concord and Placencia. Dr. W. W. FITZGERALD, Elks Bldg., Stockton, Cal.

VILLA ANNA NURSERY—Fruit and ornamental trees. Burbank standard cactus a specialty. Santa Rosa, Cal. Write for catalogue.

FOR SALE—1000 Cal. Black Walnut Seedlings, 3 to 6 ft., 2 years old; 8c. 3257 Galindo st., off Fruitvale ave., Fruitvale.

E. A. Bennett, of Ducor, Cal., will quote you sour orange seed, delivered to any postoffice.

MISCELLANEOUS.

J. E. LAWRENCE, 210 Clay St., San Francisco. Broker and Commission Merchant. Handles all farm products. Ship direct or send samples.

Thoroughbred Hoganized White Leghorn pullets, six weeks old \$6.00 per dozen. Write for prices on pullets of other breeds. TRUMBULL SEED CO., 257 Market St., San Francisco.

GAS ENGINES REBUILT IN OUR SHOPS

give the same satisfaction as new ones. Expert mechanics rebore the cylinders, make new pistons, and rings, and refinish all bearings and wearing parts. Every engine carefully tested for capacity and operation and sold with a rigid guarantee. As we can furnish any size or make at extremely low prices, you cannot afford to purchase an engine without first getting our proposition. We can refer you to many satisfied customers. SPECIAL: 14—8 H.P. Samson Engines, with magnetos and tanks, each \$150; 5—10 H.P., each \$195. Information cheerfully furnished. MECHANICAL INSTALLATION CO., Engineers, 181-189 2nd St., San Francisco.

SALESMEN WANTED

AGENTS—\$173 IN TWO WEEKS, MADE by Mr. Williams, Illinois, selling the Automatic Jack, Combination 12 tools in one. Used by auto owners, teamsters, liveries, factories, mills, miners, farmers, etc. Easy sales, big profit. Exclusive county rights if you write QUICK. Automatic Jack Co., Box O, Bloomfield, Indiana.

LAND FOR SALE.

If you want cheap, high-class suburban acreage joining the city of Sacramento in tracts of from 1 to 10 acres, write today for our attractive folder and details of the greatest land proposition ever offered in California. NORTH SACRAMENTO LAND CO., Owners of North Sacramento, 1004 K Street.

DRY YEAR COMING

PLENTY WATER AT LOS MOLINOS.

This is one of the driest years California has ever known—even drier than last year. Nearly every irrigation district in the state will be short of water—same as last year.

Los Molinos is one district in the state that had water to waste last season. It is one district in the state that will have more than enough this year. There is 50 per cent more snow in the mountains than last winter.

Farmers at Los Molinos will get a full crop of alfalfa this year—10 tons per acre, and it will probably be worth \$15 a ton, making three years in succession it has reached this figure.

It pays to be in districts where you get full crops dry years when prices are high. A single crop of alfalfa at Los Molinos during the last two years was worth almost the price of the land.

What better could you ask? Land only one-tenth cash and 8 years to pay out. Anybody can succeed with such an opportunity.

And we will help you. We will furnish you all the cows you can handle on butterfat payments without a cent cash down. We have distributed 1200 cows on this plan during the last 18 months. Dairymen are growing rich—on our capital.

You can come now and start with a few cows and depend upon wild pasture. Fine fruit district. Oranges did not freeze last January. No better vegetable soil anywhere.

Beautiful place to live—great oaks, running streams, etc.

Land getting scarce.

Come at once or write today.

LOS MOLINOS LAND COMPANY,
Los Molinos, Cal.

The Oakland & Anitoch Electric Railway begins the running of regular trains on Monday, April 7th, to and from the Key Route Mole, without change of cars, to Lafayette, Walnut Creek and Concord.

Be sure to take the trip.

Look at our lands.

See this beautiful country.

You will like it.

Everyone does.

Near enough to Oakland and San Francisco to go back and forth every day.

That is the place to live.

Your house rent will buy you a ranch or a home in the country.

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Grow anything grown in California.

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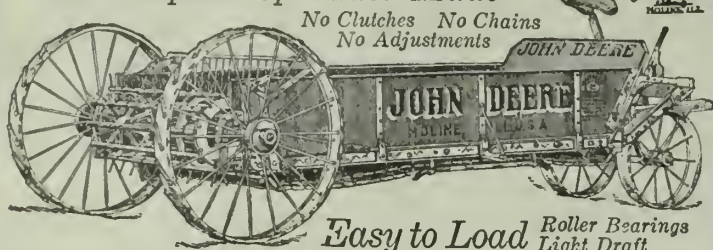
734 Market St., San Francisco.

Branch Office:
1538 Broadway, Oakland.

John Deere Spreader

The Spreader with the Beater on the Axle

The Simplest Spreader Made



No Clutches No Chains
No Adjustments

Easy to Load Roller Bearings
Light Draft

Decided Improvement in Spreader Construction

Up to this time every spreader on the market has been constructed along the same general lines.

The John Deere Spreader, however, is different. It is entirely new and there is nothing else like it on the market.

All the working parts are mounted on the main axle. There are no strains and stresses on the sides or frame and no clutches or chains to give trouble.

The John Deere Spreader is low down, easy to load, very simple, and always ready for business. It cannot get out of order.

Beater on Axle

All the working parts on the John Deere Spreader are mounted on the rear axle. There are no independent studs or shafts to give trouble, nor chains or sets of gears to get out of order. All strains and stresses are borne by the main axle and are not transmitted to the side of the box or the frame of the spreader.

Power to drive the beater is taken from the rear axle and operates through a planetary transmission (similar to that used on automobiles) mounted on the rear axle within the beater.

Light Draft—Few Parts

There are at least two reasons why the John Deere Spreader is the lightest draft spreader made. One is that it has four sets of roller bearings; two in the front wheels and two on the main axle and beater. They reduce the draft materially.

Another reason is that the John Deere Spreader has so few parts. It has about 150 less types of castings than the simplest spreader heretofore made. It is only natural that the fewer parts a machine has, the easier it will operate.

When the John Deere Spreader is out of gear, it is simply a wagon.

Easy to Load

The first three feet manure is lifted with an ordinary spreader are easiest of all. The real hard work is from this height to the top of the ordinary spreader.

The John Deere Spreader is low down. It is only necessary to lift each forkful

three feet. Thus, the hard work of loading a manure spreader is done away with. Besides, the person doing the loading can see inside the spreader at all times. Each forkful is placed exactly where it is needed.



Easy to Load

No Adjustments

On the John Deere Spreader no adjustments are necessary. On the simplest spreader heretofore made, it was always necessary to make from ten to twenty adjustments before the machine would work at all.

John Deere Spreader is thrown in gear by moving a heavy dog back until it engages a stop at the rear of the machine. No clutch used.

Positive Non-Racing Apron

By the use of a very simple locking device inside the ratchet feed, the apron is positively locked against racing when spreading up hill or over exceedingly rough ground. The result is that when spreading with the John Deere Spreader the manure is always spread evenly. This is not possible on any other ratchet feed spreader made.

Change of Feed

Change of feed is accomplished by a double shoe which is moved from the seat. This shoe determines the number of teeth the ratchets engage at each stroke. The John Deere Spreader has a variation of from five to twenty-five loads to the acre.

Substantial Steel Frame, Like the Modern Railway Bridge

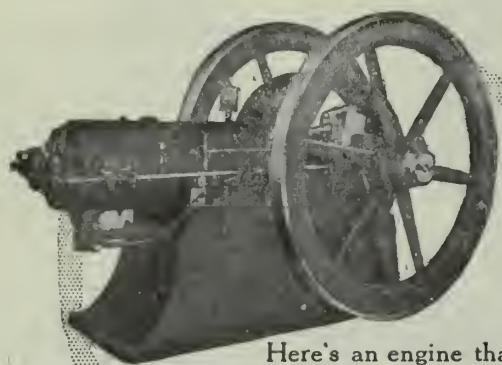
Both the side sills in the John Deere Spreader are of high carbon channel steel with the channels turned to the inside. Into these hollows are fitted four large wooden cross sills. Being bolted, these cross sills can be kept tight, insuring rigidity and alignment of frame at all times.



Built Like a Steel Bridge

Even if You Don't Need a New Spreader Now, Come in and See It.

JOHN DEERE PLOW CO., SAN FRANCISCO



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ENGINE
Power
and
Simplicity

Here's an engine that represents the highest development of horizontal engine construction. Every adjustment has been provided for; every unnecessary part has been eliminated; and every piece of material used in its manufacture is guaranteed. The

Z. S. Distillate Engine

starts without cranking. Once started it runs 'till you shut it off. A child can operate it. Write at once for full information. Address

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Pump — durability

"THE FIRST COST SHOULD NEVER DETERMINE THE PURCHASE OF A LABOR-SAVING MACHINE. The ultimate cost is the thing to be considered; and that is the sum of first cost plus the cost of maintenance. There comes a time sooner or later when the ultimate cost is twice or thrice or many times the first cost. Just when that time will come depends upon the wearing power of the tool. If there is anywhere that quality counts, it is in a machine tool. For 'Quality' is that element in a machine which keeps the ultimate cost down by keeping down the cost of maintenance. It pays to buy 'Quality' machines."

Layne-Bowler Pumps

always give satisfaction because they always prove cheapest in the long run. Our many follow-up orders from people who have used our pump before prove this.

There is no complex mechanism—no going down into the pit to tighten bolts, etc. Any adjustments are made at the pump-head. We have pumps now running in many parts of the country which have never had a dollar's worth of repairs.

If economy and money saving is any object to you, you owe it to yourself to investigate the Layne-Bowler Pump.

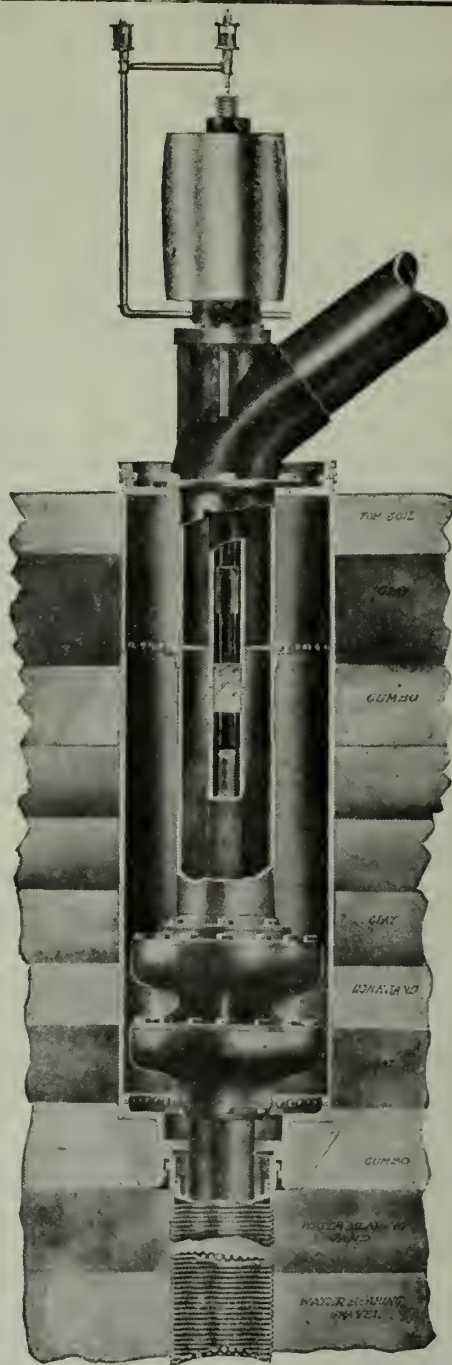
And, remember, that the Layne-Bowler Pump is a pump that **always** runs when you want it to.

Send for Catalog No. 25.

Layne & Bowler CORPORATION

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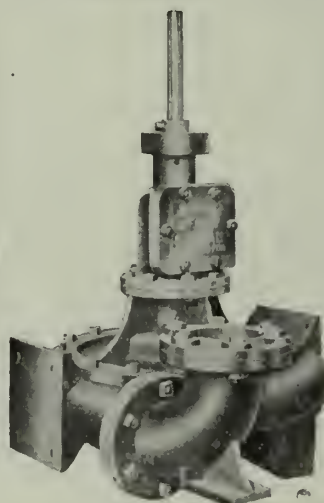
KROGH'S NEW VERTICAL PUMP

The Krogh New Water Balanced Vertical Pump contains many new and valuable improvements, same being fully explained in our Bulletin R-10, which will be mailed upon request.

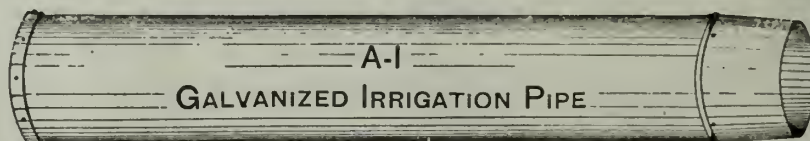
We have a branch in Los Angeles
at 206 N. Los Angeles Street.

The pump can be seen in operation
at our place of business.

KROGH MANUFACTURING COMPANY
149 BEALE ST., SAN FRANCISCO



Krogh New Vertical
Water Balanced Pump



WHY does our A-1 Surface Irrigation Pipe stand the hard usage to which it is subjected better than any other pipe, riveted or otherwise? BECAUSE it is made with a lockseam set down under 3500 pound pressure, which requires no soldering to make it water tight (solder will break loose by jarring and hard knocks). A-1 Pipe was awarded first prize at Fresno and Santa Clara County Fairs in 1912.

Send for new catalog with prices and valuable information.

AMES-IRVIN CO., 8th and Irwin St., San Francisco.

THE PACIFIC RURAL PRESS

Vol. LXXXV. No. 13.

SAN FRANCISCO, SATURDAY, MARCH 29, 1913.

Forty-Third Year.

Business Farming in California.

[Written for PACIFIC RURAL PRESS by PAUL PARKER.]

Along the banks of the Salinas river is a farmer who is doing things. A slant or angle is given his farming operations that has a business-like twist. His name is John Fuller. To farm on an exact and systematic basis, as does the banker or merchant, is his aim.

journeys, although over the same beaten path; a comparison of the past with the present will often spur one on to increased vigor and better results, for sometimes they tell us that comparisons are odious.

Debits and Credits.—So we find John Fuller keeping strict account of each day's receipts and expenditures, whether money or time. To him pencils and paper are as necessary in his scheme of farming as plows, feed, or harrows. Every time 'Joe' or 'Nell' or 'Big Dick' pull a load or drag a harrow they are credited with so many hours'



The Modern Plowman Who Does Not Plow a Weary Way.

Why not? If the grocer finds it not only helpful but profitable to keep tab of his expenditures and receipts, does not the same business principle hold true of farming? This farmer says emphatically it does.

If it costs \$36.50 to raise one acre of sugar beets, isn't that a better, a more profitable enlightenment as to costs than "Well, I think my sugar beets set me back between \$30 and \$40, somewhere in there," as a farmer only recently said to the writer? If there is more money raising hogs in proportion to the capital invested than in any other kind of live stock, isn't that a good thing to tell your children or neighbors about? Also, having a systematic account, in this way, of receipts and expenditures, makes an interesting log of past farming

work, and the crop or field is charged with the amount. As the season advances, the crop and the fields have their innings and a come-back at Nell and Joe, the hogs, sheep and cattle; for they are charged with the straw or stubble they eat. Against the season just passed, 1912, the books show that the pasturage was worth \$15 per acre. This sum may appear high for stubble, but he has it in black and white; it is down in figures just what the hogs, sheep and cattle gain in weight and value while on it.

By these same books he can tell how long it takes and how much it costs to plant or harvest certain crops in certain fields. A definite

(Continued on Page 393.)

Pacific Rural Press

Issued Every Week at 420 Market Street, San Francisco.

TWO DOLLARS PER YEAR IN ADVANCE

Entered at S. F. Postoffice as second-class mail matter.

Address all communications and make checks or money orders payable to

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Advertising rates made known on application.

Copy for change of advertisements must be in office on Monday preceding date of issue. New advertising copy must reach the office by Wednesday a. m. to insure insertion that week.

E. J. WICKSON - - - - - Editor
FRANK HONEYWELL - - - - - Manager
W. H. SCHRADER - - - - - Adv. Manager
D. J. WHITNEY - - - - - Associate Editor

CALIFORNIA WEATHER RECORD.

The following rainfall and temperature record is furnished the PACIFIC RURAL PRESS by the United States Department of Agriculture Weather Bureau, at San Francisco, for the week ending at 5 p.m., Mar. 25, 1913.

Stations.	Rainfall Data.			Temperature Data.	
	Past Week.	Seasonal to Date.	Normal to Date.	Maximum.	Minimum.
Eureka	2.00	32.40	37.35	48	34
Red Bluff .....	.64	15.54	20.66	58	34
Sacramento.....	1.02	6.84	16.39	54	36
San Francisco ..	.79	10.71	19.02	56	40
San Jose .....	.87	5.19	14.17	60	34
Fresno .....	.24	4.84	7.99	64	36
Independence...	.00	3.83	7.84	56	26
San Luis Obispo	.56	7.16	17.38	56	36
Los Angeles .....	.32	12.44	13.48	62	42
San Diego .....	.32	5.71	8.59	58	44

The Week.

The rains came through all right after our sour slam at them last week, and reached the more joyful figures which are recorded higher up in this column. They have improved the general aspect of agricultural things and have steadied the nerves of those naturally disposed to forebodings. This is especially desirable because of the large amount of development work in progress. Those who wish customers now are doing well with the multitude of people which are thronging the railways, and those who are capturing large tracts for later subdivisions are seizing the chance of getting in some work this spring, so as to be more forehanded with their offerings to the World's Fair millions. The management of this great exposition discloses much activity: all divisions of it closing in on their particular parishes with much industry and enterprise. Meantime, all people not otherwise engaged are giving attention to the doings of the legislature which are full of sensations which are fit to galvanize the most lethargic interest in public affairs. And so, in one way or another, all Californians are busy, alert and expectant as they ought to be. It is remarkable how a little cold water will warm up local energy and confidence.

The New Moneyed Classes.

It seems beyond question that in some affairs of life it is often desirable to let go and seize a fresh hold. Whether it is always best to insist upon time enough to expectorate on your palms in the midst of the process is a subsidiary question concerning which there may be a conflict between expert opinions. A general reflection on the desirability of sometimes getting a fresh hold on things is suggested by the attitude of President Wilson in the financing of the new Republic of China. It seems that President Taft intended to commit the United States to a six-power agree-

ment of nations to approve the operations of great bankers in these six nations to lend many millions to China. As we understand it, these governments were not to endorse notes for China nor to become directly responsible to the bankers therefor, but simply to pool diplomacy in such a way that China would be able to come through and to keep all other nations from doing anything to interfere with China's ability to pay her debts. It looked like rather a good scheme, and the great bankers of six nations were keen for it and had ordered the grand six-cylinder automobile in which these nations were to ride into high Chinese finance. One of the first things President Wilson did was to notify the other governments that Uncle Sam had decided to ride in the Chinese Exaltation Parade on a one-cylindered donkey of his own, and if American bankers wished to try the six-power automobile they would do it at their own risk. We are not quoting President Wilson's exact language, but that is what we get out of the official announcements on the subject. As to whether it is right for the President to shock the world in that way, and as to whether the Chinese door will swing as wide for a lank man in striped pants on a donkey as for a motor full of plethoric bankers, is a question in diplomacy for which we hold no brief. But, according to our lights, the suggestion will not be unwelcome to the industrial classes that Uncle Sam may find a way to finance himself and his friends, if he so desires, without always setting up interlocking plants with the rails which run through Wall Street. Why should there always be one or two per cent between the real owners of money, whether they be individuals or commonwealths, and the real users of money, with the same proviso? This slice out of the heart of a million has always been cut, from the fall of the Roman republic to the rise of the Chinese ditto, but has it always been necessary, and is it necessary now? Is it not because, in times most ancient and most modern also, there has been lack of law on the one side and lack of form on the other? Have not governments suffered grievous exactions since the world began because they did not qualify themselves to do direct trade in money and have not industrial users of money always suffered in the same way because they did not get into proper collective form the individual security they possessed? The whole country is now awake on this question, and even if President Wilson's jump out of the six-power compact with China should be nothing more than a political gallery play, it will do vast good in awakening popular interest in the claim that the people themselves are the moneyed classes and have the ability to finance themselves, and that bankers are public utilities rather than rulers.

Gangway for Galloway!

Perhaps no single thing pleases us more in connection with the donkey rampant on the political shield of the nation than the appointment of Dr. B. T. Galloway as Assistant Secretary of Agriculture. It is true that we caught Dr. Galloway a few weeks ago running out of a blind alley where he had been doing something wrong in irrigation history, and we scolded him for it—but that was only an instance of the occasional littleness of great men which has been exemplified since the dawn of history. For Dr. Galloway is great and has done, during the several decades of his connection with the national work for the promotion of agriculture, as much if not more than any other man in the organization of the world's greatest work in governmental agriculture—for the United States Department of Agriculture is clearly entitled to that standing. Of course, we have

to claim that Dr. Galloway has not the widest Western view. He was born and trained in Missouri and had the disadvantage of other Missourians, who, owing to the dead center of their origin, are sometimes caught blinking at the sun, first in the east and then in the west, until they forget which way it is going, and thus it was that Dr. Galloway fell into the irrigation ditch afore-said. If a Missourian moves westward he becomes a Californian, and need yield to no man in the length and clearness of his vision. If he goes eastward he gets near-sighted in the jumble of little hills which shut him in, and will fall over himself once in a while: once in a very long while, however, for Galloway. We rejoice then in the promotion of Dr. Galloway to the Assistant Secretaryship, because it gives us a better chance than ever to realize the original conception of the function of the office to which he has been chosen, viz.: to fully organize and correlate the scientific work of the department so that it could move forward for the advancement of agriculture with less countermarching and parade tactics than hitherto. We had almost said so that it could "march forward like an army with banners": it was a narrow escape—because in the past it has been too much an army with banners. The ensigns of the petty chiefs of bureaus and divisions have cluttered up the sky so that none of them could do effective shooting, and many of them have rushed to Congress to get more ammunition with which to bombard the skies and to employ more common soldiers who have had to rush about interfering with the proper function of the State research outfits, simply because each divisional commander had to have an army of his own to be counted large in his undertakings. California has not been injured by such invasions, and therefore we do not write from any personal feeling. California is so large and has so many problems that the departmental cohorts have been deployed with great aggregate advantage to the State and without trampling on each other conspicuously. They have, however, overrun many a little ewe-lamb of research which should have been allowed to grow unmolested in the smaller States, by means of the provender which the States, if locally left to themselves, would have provided. Dr. Galloway is a peerless organizer, and we expect great advantage to the whole country from his installation in his new position.

Nationalizing a Californian.

We hear a pretty loud whisper that Arnold V. Stubenrauch will be called to the headship of the Bureau of Plant Industry which Dr. Galloway has built up to wonderful breadth and efficiency. Mr. Stubenrauch has been nearly a decade in the service of the Bureau, first as assistant to G. Harold Powell in his famous work for the fruit industry and his successor when Mr. Powell accepted the leadership of the California citrus industry on the commercial side. Mr. Stubenrauch had practically decided to come to California also to develop new lines of deciduous fruit instruction and research at the University of California, of which institution he is an honored graduate. It seems likely at the moment that Mr. Stubenrauch may seek release from our University that he may enter more fully upon a national work as Dr. Galloway's successor. Whether he actually decides to do this or not, we wish to say a word about him just the same. We desire to record the fact that the slender personality of this writer stood one day, long ago, between Mr. Stubenrauch and a merchant-prince ship. He was trained as a boy in one of the leading commercial houses of San Francisco. Something more than twenty years ago, a slim, clean, bright-eyed boy called upon

us to ask if we would advise him to turn from the commercial line to the study of agricultural science, in which he was becoming much interested by reading and observation, and could he make largely his own way therein. We could see well enough that such a boy could make his own way in any undertaking which had firmly laid hold upon his desire and ambition, and so we questioned him only upon the depth and genuineness of his purpose and his reasons for believing that he heard a true call and was not being arrested by some other kind of a noise. Being convinced of that by his testimony, we advised him to go to it. If we remember correctly, he had much of his preparation for entrance to the University still to achieve, but that did not discourage him, and he set out at once, using his experience in business details to support his studies, and doing most excellent clerical work for those who took part in his scholastic training. Thus working and studying, he finished his work at the University of California and took a post-graduate year at Cornell; everywhere gaining the esteem and interest of those under whom he worked and justifying, by his own achievement and his joy in it, the wisdom of his decision to turn away from the quest of a merchant prince and pursue a purpose of rendering creditable service in agricultural science. Since he finished his studies he has been called to several official positions, in all of which he has done so well that advancement came without seeking, and now, if he decides to accept it, he will lead a division of the national department of agriculture which is second to none in the variety and value of its public services. Mr. Stubenrauch is still a young man and rather than wait for some one else in the next generation to praise his finished work, we throw out this fragmentary personal sketch for the encouragement of others who are still young and capable of progress.

Phases of Agricultural Interest.

Talking so much about personal elements in national agriculture reminds us of a statement which came through by telegraph the other day, claiming that forty per cent of American farmers did not care whether national agricultural school kept or not. The critic seemed to be surprised that more than forty per cent of all the farmers interviewed by government representatives believe that experience is the only teacher of farming. This percentage told agents recently sent out by the Department of Agriculture that they took no stock in farmers' institutes, demonstration agents, farm papers, or Department of Agriculture publications as aids in making the soil more productive. The story is that, starting on motorcycles or on foot, four Department agents traveled through thirteen States, visiting every farmer along the way and asking questions. This inquiry revealed the fact that, of the farmers who got Department of Agriculture bulletins, 84 per cent read them and 48 per cent followed the suggestions contained therein. Of those who attended farmers' institutes it was learned that 54 per cent practiced the methods advocated there.

These figures have quite a different significance to us than they seemed to have to the interviewer who recited them. Instead of being remarkable that forty per cent of farmers as you tumble them over the highway, should neglect the means of progressive farming it is to us remarkable that so many are really reached and convinced of better ways. We believe that a decade ago not more than twenty per cent would have been found of mellow mind; and a decade before that, not more than ten per cent perhaps. We are in fact going very fast in the appreciation of the

printed word in farming: we doubt if any other propaganda in the world can show such speed. As for the statement that "experience is the only teacher of farming," it is true and always will be true. All other forms of teaching are but suggestions to experience. But a man does not have less experience by reading true agricultural writing: he really gets more of it. Even so-called theoretical agriculture is based upon it and is worthless if otherwise established.

How Old Is an Egg?

Probably, like a man, it is just as old as it feels: and that fact is to be demonstrated by experience. Age is no detriment to Kansas eggs, according to Dr. S. J. Crumbine, dean of the University of Kansas School of Medicine and secretary of the State Board of Health, who has started a series of tests in an effort to prove that his theory is correct. A squad of men employed in the experiments for ten days will be fed eggs two years old. The aged cold-storage product will be served raw to the men each day with their meals and careful records will be made of their physical condition during the tests. We have no doubt they will be shown perfectly wholesome, but the experiment strikes us as over-refined, like those old tests of the sulphur question which fed a lot of men the same amount of sulphur which they claimed to find in California dried fruits but did not give them any fruit at all. It was no test at all of the dietetic desirability of sulphured fruit, and so it may be with this test of ancient eggs. Why not feed the men eggs as they are usually served and not require them to gulp them down raw? Very few people can stomach raw eggs: most people would lose the eggs and the meal which preceded them, and how distressing the final report will be with pictures of the regurgitators in action. Some thoroughly scientific things make us weary. It is not the egg so much as what a man thinks of the egg which determines his attitude towards it. The Kansas affair is therefore not so much a test of the quality of an egg as of the nerves of a man.

Queries and Replies.

Querists must submit full names and addresses.

Walnuts Here and There.

To the Editor: What is the advantage of a high grafted walnut? I am about ready to plant 10 acres to nuts and do not know whether to purchase Franquette grafted high on California Black or not. Will northern grown fruit and nut trees do better here than southern grown trees? If alfalfa is planted between the walnuts and irrigated, will the nuts thrive as well as with clean cultivation?—Planter, Lake county.

The advantage of grafting English walnut high on California Black walnut consists in securing a main trunk for the tree, which is less liable to sunburn and probably hardier otherwise than is the stem of the English walnut, and the present disposition toward higher grafting or budding seems therefore justified and desirable.

There is no demonstration of the superiority of northern or southern grown trees. There is an impression that the movement from a place of less growth to a place favoring greater activity is better than reversing the process, and this may possibly be true, but still there is abundant testimony that a tree properly grown under conditions where it has to make its future is really better than a tree moved from any direction into a new environment. Of course, when one takes into consideration trees which are overgrown by undue irrigation or in very rich land or by the abuse of

stimulating fertilizers, there is great danger of a set back owing to the harder conditions which meet the tree at its new place, and this would be also true when a tree that is overgrown is moved to a less favorable situation even in the same vicinity. What we need for planting under all conditions is a thrifty, strongly grown plant making its growth as nearly as possible under the same conditions which will determine its growth after transplanting.

Walnuts will do as well in irrigated alfalfa, providing the moisture is adequate for the two growths. If moisture is scant the alfalfa will rob the tree. If moisture is so abundant as to cause maximum growth of alfalfa, there is danger that the trees may suffer from soil saturation causing root decay. The secret of success in this double growth on the land seems to depend almost entirely upon the proper adjustment of the moisture content of the soil to fairly favor both growths without injury to either.

Scrap Iron as a Fertilizer.

To the Editor: If you will answer the following questions it may do some good to myself and others. Is cast or other iron in small pieces plowed into the land of any benefit to trees as a fertilizer? If so, what would be the value as such per 100 pounds? Farmers have tons on hand which they do not know what to do with. Junk dealers sometimes offer 25 cents per 100 pounds. If it has any value as a fertilizer I am satisfied it must be worth four times that price. We pay 3 cents a pound for sulphate of iron as a fertilizer. Of course, it is a salt and dissolves quickly, therefore I believe cast iron, even if it works slowly, has some value, and at the same time farmers can clean up and get rid of a lot of rubbish.—W. L., Bloomfield.

It is true that iron is desirable to plant growth and in some cases the most available and soluble form of iron, namely, the sulphate, which is mostly used in fertilizers, is desirable to apply. In most cases the California soils are sufficiently supplied with iron by nature. It is quite true that iron scraps have a little and remote value because they are so slowly available by the process of rust disintegration. It might therefore be worth while for farmers to bury such scrap iron as accumulates on the place below the reach of the cultivating tools. However, it would not be profitable to buy iron scraps for fertilizer at junk dealers' price, nor would it be profitable to haul this material any long distance, even if it could be had for nothing.

Pruning Frosted Palms.

To the Editor: What is the best method to pursue in pruning palm trees injured by frost? I have in mind a fine specimen of the Phoenix canariensis having most of the leaves and stalk frozen about half way back from the tip. As the new growth starts from the trunk and not from the point of separation between the sound and frozen part of the branch, would it be well to prune off all dead wood and leave the live stubby stalks until such time as new shoots start to take their place? There is one large leaf and one young center growth entirely untouched by frost.—G. M., Madera.

You should certainly remove all leaves which are dead from frost and the stems or stalks pertaining thereto, leaving the plant to renew its top with the central leaves which are not frozen and others which will push forward at that point. There is only one growing point on a palm, which has not made suckers or off-shoots, and that is at the apex. The growing center of the plant is well protected, so that even if all the leaves, young and old, should be killed by frost, the chances are that a new crown will be established later. For this reason it is important not to interfere at all with the apex of the plant, but to remove all frosted material around it.

Making a New Citrus District.

[By OUR ASSOCIATE EDITOR.]

The Natomas Consolidated is putting a great new citrus district on the map in eastern Sacramento county, and the method used in so doing is a lesson in the proper handling of a piece of raw land by any person anywhere.

The new citrus district is adjoining the foothills of the Sierras and begins about seven miles east of Sacramento city and lies south of the American river, extending up to Folsom. There are about 20,000 acres that will be set out to fruit. That farthest west, toward the center of the valley, will be planted largely to almonds and other deciduous fruits. Most of the next third of the property will be best suited to olives, with a good percentage of citrus fruit land also, while the upper third, with the best air drainage and the least probability of serious frost is designed for citrus, with olives in places where exposure and location would make oranges inadvisable.

Nature's Handiwork.—Nature left this land in a condition where its value for agricultural pur-

was to make a soil survey of the property. Borings were made on every 10 acres of the land to see how deep the soil was, its nature and composition.

For this work the owners secured a regular soil expert, Caesar Bigler, who is looking after the matter right along. The soil was classified into the seven types that were found, all being about the same, and chemical analyses made of many samples of each to see what was probably lacking and what fertilizers and what treatment would probably be best. That would show both how much soil there was in every piece of land and what the soil was made out of.

The next step was growing trials. Samples of soil were taken and different crops were grown with different fertilizers supplied, and that showed whether lime, humus, phosphoric acid, potash, or what was needed. As above stated, the main needs were for lime and more vegetable matter in the soil. These trials were made only in pots, and will be followed by actual field trials.

pany, it is true, for application to a large tract of land, but there is no reason why an owner of a ten or twenty or fifty-acre piece of land anywhere might not just as well see how deep his soil is, what it contains, and what crop it is best fitted to.

Water.—The water proposition was the thing that held the land back until the present development. The rainfall was not sufficient to give a very heavy growth on any but very rich soil. Soil that caked on top was not satisfactory for the best use of the rainfall. This land is also gently rolling and difficult to lead water over without skillful engineering and without there being enough of a demand for the water to justify a good sized canal. Also it was held in many different hands. Not until it was brought into single hands and plenty of money was available for development did irrigation come.

Most of the water, enough for 17,000 acres, comes from the American river, some distance below Folsom. The plant there is very interesting. There are three 22-in. Yuba centrifugal pumps run by electric power. These draw the water from the river below and force it up 50 feet to a concrete canal, in which it flows by gravity over the property. The pumps are in a solid concrete



Alder Creek Pumping Plant on American River.



Salmon Falls Dam Diverts Water for 10,000 Acres.

poses, without great assistance, was not great. The soil is of that red type that with variations is common in many parts of the State, north and south. Naturally it produces but scant vegetation in normal years. With just the right amount of water it is a nice loam, with much water it may be a sticky clay; dry it is almost as hard as a rock. Such soil is usually very rich in potash, only fair in phosphoric acid and perhaps less than fair. It is also more lacking in lime than most other California soils and the lack of heavy natural growth makes the humus supply well below the average.

The fundamental lack is really of lime, for the soil has practically no free carbonate, the application of acid will show no bubbles and very careful examination will show a slight acidity. The addition of lime loosens up the soil, makes it less of a wax when wet, a real loam when dry or moist, makes it take water nicely and permits a growth of vegetation that after a few seasons supplies the soil with the necessary humus and leaves it in first-class condition in all respects.

There are seven soil types in the property, all resembling one another in many respects, and the addition of lime to them made the mechanical conditions so much better that the water would sink in half as fast again as in the natural state, and it would also hold more water by a nice margin than before. Cover crops for humus will come later.

Systematic Work.—That is about what nature did for the land. The reference to lime gives a hint of the systematic way that the owners are taking to see that the development goes on properly.

One of the first things done, after seeing about water supplies, and this will be taken up later,

One of the plans is to have two experimental plots, one in a favored location, the other in a poor location. Both could be given the same treatment, and the results would be a demonstration of the value of good soil and exposure.

Crop Selection.—Another important feature of the scientific planning is the selection of crops. There is too much planting of the wrong trees for soil and location. After knowing the depth and quality and soil and the kind of treatment that would be most desirable, an examination was made of the exposure of each piece.

E. K. Carnes, chief horticulturist, formerly superintendent of the State insectary, and the soil expert, Caesar Bigler, together go over each ten acres, and with a record of soil nature, judge by slope, exposure to wind or to sun, of the probable freedom from frost or wind, what kind of fruit should be planted, citrus or olive, almond or other deciduous fruit. Thus the right tree goes in the right place.

The company is going to do most of the planting, but even persons who buy the bare land to develop it themselves are to be required to plant the fruit that it has been decided on would do best, for then there will be no failures through bad choice of crop.

Another feature of the plan is that every third plot is to remain unplanted, so that there may be diversity of crops. Every 10-acre tract will adjoin an unplanted tract on one side or the other, and the owner will be given the opportunity to buy five acres of that ten on which to raise some alfalfa, some small fruits or other such crop. That will make for a diversity of products and more uniformity of work than occurs in a one-crop country. These plans are made by a big com-

structure, and in case there are floods on the river the motors can be raised above the tide and the pumping continue uninterrupted.

This water is taken to the highest point of every ten acres in the 17,000 below the main canal, and will be conveyed over each piece in pipes, just where it is wanted.

The remainder of the land is to be irrigated from Salmon falls on the Consumnes river. There will be one inch of water to every three acres, more than half as much again as is frequently used in the South. Besides this, there is a fair winter's rainfall, which ordinarily makes a good cover crop. The cover crop this year, for instance, is much heavier than in much of the Santa Clara valley, and with lime to loosen up the soil and several good cover crops, everything that the soil needs will be amply provided.

A very important feature of the development is thorough drainage provisions, which will prevent water-logging and soil injury that often follows heavy irrigation.

Climate and Situation.—Nothing of particular importance can be said about the climate and location that cannot be said about nearly all of the citrus districts north of Tehachapi. All have a high summer temperature, a very dry atmosphere in summer, and temperatures on the winter nights that soon bring a tree into a condition in which it can withstand as intense cold as is ever likely to attack it, provided it is a little off the floor of the valley and well situated. Also the climate is such as to permit all the naves to be taken off before injury by frost occurs. This last is true anywhere between Bakersfield and Red Bluff. Summer temperatures, however,

are below those toward either the upper or lower ends of the big valley.

The frost this year apparently did no injury at all, except cutting back some suckers, for at least hardly a tree of several blocks of young grove showed more than an occasional leaf with burns around the edge. Like several other sections of interior California, the injury seemed to be much less than in other interior sections, and perhaps it will be turn about next big freeze, but apparently any great damage by cold to trees that withstood January's freeze is more than unlikely.

Yet winter frosts may cut back or injure unpicked fruit, and to prevent this on land only navels are to be planted, so that all the fruit may be off before the cold comes. Valencias and lemons are not wanted by the company, although if buyers want to plant them out, possibly there may be no objection.

As yet the gently rolling land shows little indication of the future that lies before it, but the laterals of the canals are being laid out, the soil surveys completed, the selections of tree varieties for the different ten-acre tracts made, roads cut through, and, in addition to the plantings of one, two, and three-year-old groves of olives and oranges that show methods of culture and results, nurseries have also been started, thousands of young orange trees purchased, all that could be secured, in fact, against other buyers after the

freeze got through its work, and the change to a region of small homes in but a few months will be most apparent.

Plan of Settlement.—In the same line with the measures taken to gain accurate information as to the best methods of handling, are the plans for settlement. There are too many instances in California where inexperienced settlers have met disaster through ignorance of what to plant and the way to care for their land generally. If a person knows his business he can get the raw land and develop it himself; or even if he doesn't know, he can develop it himself with the example of scientific management and good advice to help him. And since the first three years are the critical ones in every young orchard, the company will also plant and care for property for buyers for several years until the trees reach a bearing age. Then the owner can afford to move on the land and can care for it to better advantage than if he had to start it all himself. Everything will be done to prevent anybody on the place from injuring his neighbors by making a failure in home building.

Thus before long, instead of the bare land, containing few homes, used for cattle only, or for grain farming, there will be another large section producing the golden fruit for which California is famed and giving homes and incomes to many hundreds of families. It is typical of the future of the Golden State.

Orchard Hints for Beginners.

Orange Propagating.

To the Editor: I am contemplating putting out a lot of olive cuttings, using cuttings from some good hardy Picholine trees, and would thank you very kindly to let me know if I should keep these cuttings in their first place of planting for a period of two years, or whether I could remove them at this time next year (1914) and plant them and do the budding to Mission olives while the trees are in their permanent place of planting. I would prefer to do this latter, if it is proper, rather than to bud the one-year-old growth at the nursery.

I think it better to plant the Picholine cuttings, which I understand is the hardiest grower and makes the best root, and then bud to Mission variety, which seems to be the best variety for general market use at this time.—M. C., San Francisco.

There are a number of new wrinkles coming in in the propagation of olives and we are not quite sure that we are on the frontier. We are quite sure, however, that the budding or grafting should be done in the nursery and not in permanent place. There is too much danger of injury to new shoots coming from budding or grafting after planting out and too much danger of uneven and unsatisfactory results, except in the case of old trees which are grafted over high up where the danger of not getting a full or satisfactory standing is, of course, much less. We have seen some very good results recently from crown root grafting of Mission on Picholine. In this case the Picholine cuttings have been of good size, say, perhaps half an inch in diameter and about six inches long. There was apparently one year's growth on the graft and two years from the time of setting the cutting. The root system was very good and the top growth also satisfactory. These trees were evidently grafted in nursery row and dug for sale with one year's top growth as stated. The graft was apparently made with what is called a pushing bud, that is, rather young wood less than a quarter of an inch in diameter with buds just on the joint of becoming active. This method seem to be surer of growth than to use entirely dormant wood for grafting.

Various Pests.

To the Editor: For two years we have sprayed our Thompson's Seedless. Tokay and Emperor vines, about this time of the year, with Bordeaux mixture, thinking that it would aid in keeping down mildew. I now doubt its benefit. Please inform me whether there is enough benefit in spraying thus at this time to pay?

Also when is the best time to spray almond and

prune trees for red spider? Is it best to wait until they show up with their work? We have sprayed with the lime-sulphur spray. Also, is it best to wait until peach trees bloom before spraying for peach worm and curled leaf, and is Bordeaux mixture or lime and sulphur better?—C. J., Wasco.

In the PACIFIC RURAL PRESS of March 8, Prof. Bioletti discusses the comparative value of sulphuring and Bordeaux spraying for grape vine mildew. There is apparently very grave doubt as to whether the Bordeaux spraying which you have been doing has been worth while, although it may minister to some protection of the trunk. This would, however, be more likely to be true in places where there was more danger of the growth of lichens on the trunk than is likely under your conditions.

The best time to spray for red spider is just as the spiders are hatched. The eggs as seen by a magnifier at that time, are turning from a reddish color to the glassy iridescence of the empty shell. It is not desirable to wait until the foliage distinctly shows the abrasions by the insect.

Spraying for the peach moth must be done with the lime-sulphur mixture just as the color is beginning to appear in the expanding blossom buds of the peach. The worm at that time is emerging from his winter burrow and the blossoms are not sufficiently opened to be injured by the spray. Spraying with the lime-sulphur when the trees are in blossom would destroy a large percentage of the blossom. Some people have claimed that there was no particular objection, because it might save thinning of the fruit later, but that is hardly a rational position, because one does not know how many blossoms may escape the spray and whether they would be enough to constitute a crop. This spraying ought to control curl leaf, except as it appears late, and then should be hit with Bordeaux or more dilute lime-sulphur.

Watering Olive Cuttings.

To the Editor: Permit me the question: How to treat small olive cuttings in the sand bed. Is it necessary to wet the sand bed daily or just enough to do so every other day; further, may the sand boxes with small cuttings be placed in the sunshine? I found no suggestion regarding this matter in your esteemed and very useful book, "The California Fruits" (page 402), therefore, I took the liberty to molest you.—J. G. S., Lindsay.

Keep the sand visibly moist, but not too wet, for that will rot the cuttings. Cover with a lath or brush shelter so as to give partial shade and you will not need to sprinkle so often. You must use your judgment as to intervals between sprink-

lings. When the cuttings take to making new growth actively, give them more sun. In the interior, however, partial shade should continue for some time; near the coast it can be dispensed with. There can be no exact rules for things requiring judgment according to local conditions.

Nitrate of Soda.

To the Editor: Will you please inform me as to the nature of nitrate of soda? I have half an acre of strawberries which will fruit their second season this spring, and half an acre set last month. I had intended to use nitrate of soda on them, but was talking to a friend who told me it would kill my soil. That the first year it would produce an enormous crop and the next year I couldn't raise anything. That it seemed to sap the vitality from the soil. Now, if this is the fact I don't want to use it. If it is all right, how much, and how should I use it? Which would be better to use here: stable manure or commercial fertilizer?—J. C. O., Wakefield.

It is true that nitrate of soda is a stimulant of plants, and by rendering soil fertility immediately available may seem to reduce the supply later, and yet it is a most available forcing fertilizer if used with great caution, not over 200 pounds to the acre evenly scattered over the whole surface or a less amount, of course, if confined to particular areas. If used in excess it may actually kill the plants. Still nitrate of soda is being used actively and intelligently by nearly all growers of plants and must be counted on the whole a valuable agency. If you can get stable manure, nothing is better as a complete plant food. Application to strawberries must be made at the close of the season, rubbish scraped away and manure applied and allowed to stand on the surface during the early rains, being worked into the soil during the rainy season. If the soil is light, sandy loam, too much coarse material must be avoided. Therefore, well-rotted manure is important on such soils while on a heavy soil coarser material may be used to advantage if applied early in the rainy season.

If you have no well-rotted manure or if you wish to fertilize now, a complete commercial fertilizer will give best results.

Dwarfing a Fruit Tree.

To the Editor: I am told that by pruning the roots of a young tree after the root system is well started (say three years old) that as a result this will produce a tree that is semi-dwarfed or practically a dwarfed fruit tree. Please let me know about this.—E. T., Alameda.

Yes; cutting back the roots in the winter and cutting back the new growth in the summer will have a dwarfing effect. The best way to get a dwarfed garden tree is to use a dwarfing root. You can get trees on such roots at the nurseries.

Cutting Back at Planting.

To the Editor: I have planted a lot of one-year-old cherry trees this week and would like to know if I should cut them down the same as the apple tree? I have also planted a lot of walnut trees. Shall I cut them off?—F. L. C., Groveland.

Yes for the cherries and no for the walnuts—although we have to admit that some planters hold for cutting back the walnuts also. If you do cut back the walnuts, let them have about twice the height of stem you give the cherries and cover the exposed pith with wax or paint.

IRRIGATING STRAWBERRIES.

J. F. Tribby, a farmer in Napa valley, has been making his strawberry plants grow in spite of the dry weather, by bringing a main pipe from his water tank across the end of the bed. To the main pipe he attached laterals which were perforated every few inches with very small holes. The laterals were trenched in between the rows and covered with a little straw to keep them from becoming clogged, then covered with earth deep enough to allow a wheel cultivator to be used.

The moisture came to the surface, but the ground did not bake as it would by sprinkling.

Raising Corn for the Silo.

[Written for the PACIFIC RURAL PRESS by
W. M. CARRUTHERS.]

The first of May will soon be at hand and all farmers and stockmen who expect to grow a crop of corn this year would do well to begin to get the land in order. Having the ground in proper condition before any planting is done is one of the main essentials toward a successful crop.

Corn land should be worked up to such a condition so the surface soil will be a fine mulch. When the land is worked up like this it is a great moisture saver and will go a long way in retaining the moisture in the soil through the long dry months when the crop is growing. The corn crop does not need a great deal of moisture and if the land is well soaked during the winter, then put into good condition under a thorough system of cultivation, it will go a long way in helping to mature the crop.

Before planting a good custom to follow is to test the seed corn before it is put in the ground. Many a crop has been lost from this cause. Pick a few kernels off each ear, then take a box, put three or four inches of soil in it, then plant the seed. In a couple of weeks or so this seed will germinate so that it will be easily seen whether the corn will make a crop or not. By all means plant California-bred seed. If it is not possible to get this seed, get a little and mix it with the corn you figure on sowing, then in a year or two you can breed your own seed corn by making careful selection of well rounded-out ears before the crop is harvested in the fall. Careful selection, and corn bred on your own place will, as a general rule, make better seed than anything you can buy, unless it is from a neighbor's field and grown under the same conditions as one's own.

While the corn crop is growing, the cultivator should be kept working amongst it all the time until it is too large for the horses to go through. By doing this, moisture will be constantly brought up on to the surface, and if the land has been properly put in order before the seed was planted, the fine mulch will hold the moisture from evaporating.

Harvesting the Crop for the Silo.—The corn should be cut while the stalks are still green but after the lower leaves have begun to dry. At this stage the kernels have hardened or glazed on the outside but are yet in a dough condition in the middle. If cut too green, the silage, will lack protein, sugar and other nutritive elements and will contain an excess of moisture, generally making it sour. If too matured, it will be dry and unpalatable and with a fibre very prominent. In this condition it contains less nutriment, is relished less by the cattle and is apt to mold, causing it to be greatly damaged. Corn dried out in the shock makes poor silage unless wet when put in the silo.

The harvesting of corn for the silo can be done by hand with the ordinary corn knife but the corn harvester or binder is the implement almost universally used for this work. In some sections of the country corn has been cut with a sled, equipped with saw-like knives projecting from both sides. This can be used to good advantage on a small crop, but where the harvest is large it is not now used to any great extent. Where the corn falls down very badly, as is often the case on our heavy valley lands in California, the binder can be used to good advantage. It not only saves time in cutting the crop, but also binds it into bundles which are easier to load on the wagon and feed into the cutter than the loose corn.

Corn is sometimes placed in the silo uncut; this practice is not to be recommended because the stalks will not pack closely and the resulting air spaces cause excessive fermentation. The material is not as easily handled as cut silage nor is it as economical to feed. The crop should be cut up fine for best results and the entire plant, including ears, should be fed into the cutter. Although practice varies greatly, it is safe to say that corn for the silo should be cut one-half inch or even shorter. It is a well-known fact that corn will pack better in the silo the shorter it is cut in-

creases the capacity to a considerable extent. Cattle like short silage better and will eat it up cleaner.

From the cutter the silage should be elevated by a blower or conveyor and deposited in a chute or automatic distributor. One or two men are required within the silo while it is being filled, to tramp down the sides close to the wall and to keep it leveled off, thus preventing the formation of air pockets and to mix the heavier portion of the silage with the lighter. Silage has a tendency to cling to the side of the silo unless well tramped, and the heavier particles usually roll to the edges while the lighter remain near the discharge. The automatic distributor greatly simplifies the work of filling the silo and does away with much of the tramping. The operator is simply required to guide the mouth of the tube and the material descends with sufficient force to pack it nicely, doing away with the usual tramping system. This automatic distributor has been at use in the silos of the Balfour-Guthrie people on their Napa ranch for several years. It has been a great labor saver and can be seen in operation any time the work of filling the silos is going on.

It is a common practice in many silo districts to fill the silo as rapidly as possible, that is keeping the cutter and blower busy continually. This is the only economical method where the engine and cutter are rented or hired labor depended upon. However, if these considerations do not enter in, there is no objection to filling the silo gradually so long as fresh silage is put in before mold is formed on the surface of that previously placed. In rapid filling a day or two should be allowed for settling and the silo filled up a second and perhaps a third time in order to utilize all the space.

During the process of filling the silo, all doors above the height of the silo should be left open for the purpose of letting out the carbonic acid gas which is given off. When the filling is finally completed, the top should be wet down at the rate of about one gallon of water per square foot of surface and thoroughly tramped. This aids greatly in compacting the silage near the top and reducing the depth of the spoiled material on the surface. In many communities it is a practice to run in a quantity of straw or chaff after finishing with the silage and then throw a few handfuls of oats over it. Where this is done there is seldom any loss of silage worth mentioning, as the cattle usually eat the growth on the top with a relish.

Condition of crop, length of haul from the field to the silo, size of silo, method of harvesting and the cost and arrangement of labor are all elements which affect the cost of filling the silo. It is not necessary for men and teams to be rushed to the fullest extent in order to get the work done cheaply. Some of the most expensive work has been conducted with the greatest hurry. The scheme where all are working and no one is hindered by the other is the most economical. The same elements which determine the cost of filling the silo determine the total cost of the silage with additional items including cost of the land, cost of tillage and interest on the investment. On high priced lands the cost per ton will run up to a dollar and a half and sometimes higher. In some sections of the country silos have been filled from fifty to sixty cents per ton, although this is not very often the case.

Silage should always be used off the top of the silo. Any opening in the bottom admits air, which causes the silage to spoil. Many stockmen commence feeding out of the silo as soon as it is completely filled, thus avoiding any loss whatever on the top. If this is not done, the shallow covering of spoiled silage should be removed and thrown away when feeding is begun. Silage should be fed off in layers of at least two inches each day in order to prevent formation of mold.

The surface of the silage should be kept as nearly level as possible so as to present the smallest possible surface. Never throw down the chute more silage than will be required immediately. One should be very careful to keep the doors between the chute and the barn closed whenever not in actual use. Care in this respect will keep silage odors from reaching the barn.

LIVESTOCK NOTES AND COMMENTS.

[By Our ASSOCIATE EDITOR.]

"The Lord tempers the wind to the shorn lamb." The sheepmen of the country are not exactly shorn, even if a Democratic President, a Democratic Senate and a Democratic House are all ready for the shearing of Schedule K that they have so long waited for. Still, the clipping is no comfort, and alleviation of better world markets for wool is something for which the wool grower can be thankful for. Apparently the world deficiency has just come in time to make up for the operations of the tariff surgeons by putting the manufacturer in a position where he can't depress the price. Anyway, prices are as good as they were a year ago, in spite of the prospective tariff cutting.

An Eastern trade paper says, "Don't give any wool away. The trade is as strong as ever in a statistical sense. There is a world's shortage, dealers' lofts are bare, manufacturers are on a hand-to-mouth basis and every pound of the new clip will be wanted. All the foreign advices are bullish. At Hobart wool sales held January 8, 1913, the highest price ever paid for Tasmanian wool was recorded. A merino clip brought 35½ cents in the grease and clips of comebacks and crossbreds brought from 30 to 33 cents.

Wrong Thing—Wrong Way.—But reverting to the tariff, the semi-official announcement is that the tariff, whatever is left of it, is to be on an ad valorem basis with a whole lot of red tape like the present tariff. The wool growers showed absolutely that whatever the tariff was to be, high or low, it should be in fairness to government, public, grower and manufacturer, on a scoured pound basis, a genuine wool basis. This doesn't seem to be having any effect, and the new Congress evidently intends to do not only what woolmen believe is the wrong thing, but they are going to do it in what is certainly the wrong way. Well, it's not done yet, and any help to get the tariff on the right basis, even with no more protection in it, will be of value. There is another thing about the California wool man, too, that is good: while the range in a large proportion of the State is in bad shape, in spite of the showers of the last week, the sheepmen are very largely in the districts where the rain has been fairly satisfactory. Altogether there is lots to be thankful for.

Alfalfa or Barley?—Last year at this time there was also worry. One stockman we know was skurrying around figuring how much alfalfa hay he could afford to put into his steers for the market and how much grain to go with it. The rains came in time to save the range, but instead of alfalfa hay alone it was to be grain that was to go to finish them, in spite of the high price of the grains. Barley is away down in comparison with alfalfa in the spring of 1912, the grass is scarce, alfalfa is high and grain finishing, if it would pay in 1912, would pay better in 1913. In fact, with barley prices as they are and even hogs, which can get along nicely on alfalfa, at present prices it will pay better to feed the barley to hogs than to sell it. Beef with but scant natural feed might enjoy the barley even better than hogs.

No Surplus of Veal.—It is a peculiar coincidence that just as the tariff club, about to swat the woolgrower, is padded to do little injury by the world's wool shortage, so the agitation to prevent by law the slaughter of calves finds no calves being slaughtered in the country at large, except dairy calves of a sort that ought to be slaughtered for public welfare. Of course such a law preventing the slaughter of calves would not pass unless the whole of a legislature got as foolish as a lot of freak bills indicate many legislators to be, but the mere fact that stockmen quit slaughtering their calves, save their heifers, and stock up their ranges all they can as soon as the market calls for it, shows how natural development surpasses artificial regulation of business and production. While the craze for regulation of everything is on, it is a pity this lesson could not be taken more to heart (especially in California).

Official Testing.—The Jersey and the Guernsey Cattle Clubs have both decided to change the rules for official testing of cows, so that it will be necessary in making a yearly test to test the milk for butter fat only one day a month instead of two two days a month. This test may make the calen-

lations of a year's records come out a couple of pounds off in the year, but a couple of pounds of butter fat in 500 or 800 pounds is to small to have anything to do in showing the real value of a cow. The lessened expense, it is to be hoped, will make more yearly testing on an official basis and add glory to the breeds concerned. There is always

the argument about the value and the disadvantages of yearly tests versus weekly or monthly tests, but when everything is considered the advantages and disadvantages to each and the final certainty that the more official testing that can be done and the higher the average record made, the better.

How to Get a Quick Hay Crop.

[Written for the PACIFIC RURAL PRESS by
J. H. BARBER of Livermore.]

As the rains have come late and as there will be in some places a rush for whatever hay can be had by spring growth, I recall some results secured a decade ago under my supervision at the Agricultural Experiment Station of the University of California which was then in operation near Jackson in Amador county. These experiments were confined to hay crops. Grain is a product of no importance in the Amador foothills, while hay, on the other hand, is raised in considerable quantities for local consumption, and sells readily at good prices.

The results obtained in earlier experiments led to the planning and carrying out of more extensive tests during the years 1902 and 1903. These included experiments with oats, barley and wheat, grown on red slate soil and on decomposed granite, fertilized with complete fertilizers (nitrate, potash and phosphates) and with nitrate of soda alone. The results have not been previously published.

Results with Nitrate.—By far the most interesting and instructive series of experiments was that in which nitrate of soda alone was used as the fertilizer, the results of which are given below. The land used is hill land with more or less slope; the crop was oat hay (red oats), commonly grown in the district, and it had ordinary farm handling. Part of the land was plowed and harrowed; on the other portion the seed was cultivated in on the stubble.

In 1902 two acres of oat hay on decomposed granite soil received nitrate of soda at the rate of 80 lbs. per acre, applied broadcast as a top dressing on March 13th. A check plot of half an acre adjoining was left without fertilizer. Both plots had been sown at the same time and treated in precisely the same manner, except as to the fertilizer. Both were cut for hay on June 7th. The unfertilized piece yielded at the rate of 1905 lbs. hay per acre, while the fertilized plot gave 5263 lbs. hay per acre. There was thus a net gain of 3358 lbs. hay per acre as a result of the application of nitrates.

On a second piece of oat hay on similar soil two acres were treated with nitrate of soda at the same rate (80 lbs. per acre) on April 5th. This yielded at the rate of 5227 lbs. hay per acre, while unfertilized hay in the same field yielded only 1742 lbs. per acre, the gain from the application of nitrate being in this case 3485 lbs. hay per acre. Averaging the two experiments, we have 1843 lbs. oat hay per acre from the unfertilized land as against 5245 lbs. hay per acre from similar land fertilized with a spring dressing of 80 lbs. nitrate of soda to the acre—a direct gain of 3402 lbs. hay per acre from the nitrate. The market value of this increment at \$10 per ton in stack (the current price) was \$17.01, and the cost of the nitrate, including its application to the land, was \$1.92 per acre, leaving a net profit of \$15.19 per acre from the use of the fertilizer, over and above the ordinary yield from unfertilized land of the same character.

The Test Repeated.—In 1902-03 the same pieces of land were again sowed to red oats, and were sub-divided in order to test the value of different amounts of nitrate per acre, applied in one dressing and in two dressings. A third piece of decomposed granite soil, three acres in extent, divided into half-acre and quarter-acre plots, was also devoted to this purpose in order to extend the series of tests. The results obtained are summarized in the following table (Table No. I) in reference to which it may be said that No. 1 represents the average of three unfertilized plots; Nos. 2, 5, 6, 7 and 8 are each the average of two plots similarly treated; while in the case of Nos. 3, 4, 9 and 10 there was only one plot of each. The

crop on the plot receiving 100 lbs. of nitrate in two applications was damaged by rabbits so that it could not fairly be compared with the others; it has, therefore, been left out of account.

TABLE I: OAT HAY ON DECOMPOSED GRANITE SOIL.

1st Application.....	Amount of Nitrate, lbs. per acre.....	2d Application.....	Amount of Nitrate, lbs. per acre.....	Yield of Hay, lbs. per acre.....	Gain from Nitrate, lbs. per acre.....	Gain, per cent.....	Value of Increase, per acre.....	Cost of Nitrate, per acre.....	Net Profit on Nitrate, per acre.....
1	No fertilizer			1960		..	..	..	..
2	Mar. 2 80	Apr. 9 40	2886	1089	55	..	..	..	..
3	Mar. 2 40	Apr. 9 40	2886	926	47	..	..	..	..
4	Mar. 2 100	Apr. 9 40	3757	1797	91	10.78	2.40	3.38	3.38
5	Mar. 2 120	Apr. 9 40	3621	1661	84	9.96	2.88	7.08	7.08
6	Mar. 2 60	Apr. 9 60	3457	1497	76	8.98	3.88	6.10	6.10
7	Mar. 2 160	Apr. 9 80	4682	2722	138	16.33	3.84	12.49	12.49
8	Mar. 2 80	Apr. 9 80	4056	2096	106	12.58	3.84	8.74	8.74
9	Mar. 2 200	Apr. 9 100	4410	2450	125	14.70	4.80	9.90	9.90
10	Mar. 2 100	Apr. 9 100	3866	1906	97	11.44	4.80	6.64	6.64

Method of Application.—In these experiments of 1902-03 on granite soil, 160 lbs. nitrate of soda per acre, applied in one dose, gave the best result in increase of yield over that of the unfertilized land. The crop in this case (average of two plots) was 4682 lbs. hay worth \$28.09 per acre, as against 1960 lbs. hay worth \$11.76 per acre on the unfertilized land (average of three plots). The gain in yield from the use of the nitrate was 2722 lbs. hay worth \$16.33 per acre. Deducting the cost of the nitrate, \$3.84, this leaves a profit of \$12.49 per acre on the fertilizer. In other words, an outlay of \$3.84 for nitrate of soda secured a return of \$16.33, a net profit of \$12.49, in addition to the ordinary return from the land, as shown by the yield of the unfertilized plots.

On red slate soil three plots of oat hay, one unfertilized, the second receiving 160 lbs. nitrate of soda per acre in one dose, and the third treated with 160 lbs. nitrate per acre in two equal dressings, gave the results set forth in Table II:

TABLE II: OAT HAY ON RED SLATE SOIL.

1st Application.....	Amount of Nitrate, lbs. per acre.....	2d Application.....	Amount of Nitrate, lbs. per acre.....	Yield of Hay, lbs. per acre.....	Gain from Nitrate, lbs. per acre.....	Gain, per cent.....	Value of Increase, per acre.....	Cost of Nitrate, per acre.....	Net Profit on Nitrate, per acre.....
1	No fertilizer			2505		..	..	..	..
2	Mar. 2 160	Apr. 9 80	5554	3049	121	18.30	3.84	14.46	14.46
3	Mar. 2 80	Apr. 9 80	4702	2287	91	13.72	3.84	9.88	9.88

When One is Better than Two.—As a rule, two applications of nitrate of soda are recommended for cereal crops, but it will be noted that in every case in these experiments, both on the red soil and on the decomposed granite, the benefit derived from the nitrate was greater when the amount was applied all at once than when the same amount was divided into two equal applications, one put on about a month later than the other. The reason of this, however, may perhaps be found in the weather conditions of the spring. In order that nitrate of soda may have its full effect, not only must enough rain follow close upon the application to dissolve the salt and carry it down into the soil within reach of the feeding roots of the crop, but there must be a sufficient supply of moisture to maintain vigorous growth of the crop until it shall have time to take up the dissolved nitrate out of the soil and make full use of it. Now the spring of 1903 was peculiar as regards the distribution of rainfall, and especially in the lack of late rains. At the Foothill Experiment Station between March 2d, when the first application of nitrate was made (the sole application on the plots receiving the full amount in one dose), and April 2d, over 12 inches of rain fell,

and this was well distributed throughout the month, there being no less than seventeen rainy days out of the thirty-one. On the other hand, during the remainder of April and the whole of May the total rainfall was only 0.71 of an inch, made up chiefly of showers too light to have any effect on the crop. The only good rain in this period (0.46 of an inch on April 9th and 10th) was immediately followed by a strong north wind which speedily licked up most of the moisture from the ground. As a natural consequence of this unequal distribution of the rainfall the early application of nitrate met with conditions very favorable to its full utilization; while exactly the contrary was the case with the later dressing, which therefore could have but little effect. The normal rainfall at the Station for April and May combined is nearly six inches. Had even half of this fallen in April of this year, there can be little doubt that the division of the nitrate into two dressings would have produced better results.

A Reckoning of Cash Value.—In calculating the cash value of the crop of 1903, \$12 per ton has been taken as a fair price for loose hay on the ranch, since baled hay brought \$14 per ton in Jackson after harvest. Cost of the nitrate of soda in ton lots in San Francisco was \$42 per ton. Freight to lone was \$3.80 per ton, and cost of hauling with own team and applying to the crop is figured at \$2.20 per ton, making the total cost of the nitrate \$48 per ton. This sounds high, but when the small amount required per acre and the large increase in the crop resulting from its use are taken into account, it is easy to see that there is a good profit to be made on it where hay brings good prices.

In conclusion, while as a rule one cannot expect as good results in large scale operations as are obtained on small areas, it is safe to say from these experiments that on poor or partly exhausted soils the yield of hay may be materially increased by the judicious use of nitrate of soda. On some soils, and in time, of course, on all soils, other fertilizers will be needed; but the first element of the soil to be exhausted by continuous hay cropping will almost always be the nitrogen, and that this element may be easily and profitably supplied by nitrate of soda is clearly shown by these experiments made under ordinary field conditions on some ten acres of common foothill land. It is perhaps needless to add that this conclusion is directly in line with the results of numerous other investigations elsewhere, not only in this country, but also in various other parts of the world.

CHOOSING THE BEST BREEDING EWES.

[Written for the PACIFIC RURAL PRESS by
W. M. CARRUTHERS.]

The lambs from each ewe should be carefully noted so that when sorting time comes it can be seen which are breeding satisfactorily, and what class of ram suits them best, because possibly some of the most promising lambs may be the offspring of ewes that would otherwise be discarded. In a pure bred flock, a regular system of sorting at a certain age cannot be followed to advantage. In some cases it is wise to keep a ewe, a good breeder, as long as she will continue to breed. Other ewes which produce nothing good as yearlings and two-year-olds may safely be put aside.

At the same time the breeder should strive to keep the flock from degenerating into a lot of old ewes.

As to the number of ewes which should be selected annually, one must be guided by circumstances. Should the young ewes be exceptionally good and by one or more sires of which you have a high opinion, it will be wise to draw for the breeding flock more largely than usual. If, on the other hand, the yearling ewes are not to your liking, it may be well to add none to the breeding flock but dispose of all the young ewes. These matters must be left to the judgment of the breeder, but all such details are of great importance and whether they receive the attention due or not means success or failure.

As before stated, it is sound policy to manage the flock so it will not deteriorate into a lot of old worn-out ewes. With due care this can be avoided. A well-bred, good young flock will always have a far higher value than one in which some of the ewes have passed their prime.

Growing Alfalfa Seed in the San Joaquin Valley.

[Written for the PACIFIC RURAL PRESS by
J. C. LOOMIS.]

With the increasing demand for alfalfa seed all over the State a good deal of interest has been displayed in the growing of it the past year or two.

A noticeable instance of this is in different sections around Modesto in Stanislaus county during the past year and while this, like most other experiments, has failed in some instances, those who hit upon the proper soil conditions and cut the right crop have demonstrated beyond a doubt that this can and undoubtedly will command the attention of alfalfa growing in a good many districts of the State. At present most of our alfalfa seed is shipped from Modoc and Lassen counties of this State, parts of Nevada and before the quarantine was established from Utah. Arizona also ships considerable here, especially into Southern California.

Near Byron Springs some has been grown for the last two or three years with a good deal of success, as when a fair price is obtained it makes a very profitable crop.

Such a wide variation of yields have been obtained in the Modesto district it is hard to place any accurate estimate upon what a fair average would be. These yields ran from 50 pounds to 600 pounds per acre, the wide range being attributed to the difference in soils, time of cutting, time irrigated and density of the stand of alfalfa.

By difference in soils is not meant really such a difference in soils as in their locations. Some of that grown last year was on sub-irrigated, sandy soils while some of it was on higher and heavier soil. It was found that the sub-irrigated land was not nearly as good as the higher and dryer land and the following reasons were given for this belief.

On the sub-irrigated land where the roots are furnished a plentiful supply of moisture at all times the crown after sending out the stem and seed pod would immediately start another new stem thereby taking the strength from the seed pod, leaving both a small quantity and poor quality of seed. This condition can be overcome on higher ground by keeping the water off as long as desired and thereby forcing the strength of the plant into the seed so that it fills out and makes good germinating seed.

There is still some doubt as to which crop is the proper one to cut for seed. In most cases where the second crop was harvested the seed was blighted, the third cutting was good and the fourth cutting was not matured enough to germinate well. This was the experience of most everyone although one exception was found on a ranch owned by O. Moore, located southwest of Modesto. Mr. Moore cut the second crop and secured 400 pounds to the acre, but considers he lost at least half of it through rough handling.

Mr. Moore considers that the moisture conditions should regulate the crop to cut and thinks the reason so many who cut the second crop and failed to get good seed had too much moisture in the ground, thereby allowing the stool to send up new shoots which stopped the growth of the seed before maturing.

The irrigation conditions are naturally different on different soils. Where a soil holds moisture well the one irrigation before cutting the first crop may be sufficient, but if the soil naturally dries out quickly another wetting after cutting the first crop would be advisable.

The main thing is to get the proper moisture to fill the seed pod, but be careful not to have enough to start new growth before the seed is cut for reasons given above. The last named condition causing failure, density of stand is also an important factor.

On fields where a heavy stand of alfalfa was growing it was found that the seed was badly blighted and poor crops realized, while on fields where the alfalfa was practically worn out for hay crops the best and largest crops of seed was harvested; therefore it would seem unwise to attempt seed growing on land where a heavy stand is found. Much loss was encountered in the harvesting of the seed last year due to inexperience, but Mr. Moore, before mentioned, considers the following points very necessary.

After cutting with the mower do not gather with an ordinary horse rake, but instead, rake and put into shocks with a pitch-fork and be as careful as possible in handling, that the small seeds do not drop out.

In hauling to the stack do not use a common hay rack with large cracks, but have a good tight rack or instead, cover the bottom of the rack with canvas. If this is not done a great deal of the seed is lost in hauling from the field to the stack. Also be careful about tramping unnecessarily upon the load. Last year the threshing was done by a rancher who purchased a regular alfalfa seed thresher, the price charged was $2\frac{1}{2}$ cents per pound, no matter what the yield, a common grain thresher can be used but does not do as good work. Besides the threshing, to be first-class, the seed should be recleaned.

It is rather hard to figure what the ultimate returns will be realized from an acre, but Mr. Moore believes he can, by careful handling, and by selecting his old alfalfa land, produce close to 1,000 pounds per acre. Besides the seed crop last year, three crops of hay were cut, one before and two after the seed cutting.

Another by-product is the straw or chaff left after threshing. This comes from the thresher in the same form as alfalfa meal, but a little coarser, and makes fine cow feed. If it is left in a stack and where much wind is prevalent it should be put under cover, otherwise it will blow away. As no co-operative effort was made to sell the seed last year, it was bargained off to local merchants

at prices of from 10 to 12 cents, but this custom will undoubtedly be discontinued as it should bring from 16 cents upward according to the real market value.

In this, Mr. Moore was an exception also, as he sold his seed to neighboring ranches disposing of the three tons at 16 cents per pound. Even with his inexperience, Mr. Moore realized a good return, as after paying for the threshing his seed netted him about \$54 per acre, and the three cuttings of hay close to \$30, making a total of \$84 per acre, besides the by-product before mentioned.

The cost of handling was no more and perhaps not as much as ordinary hay crops as no more attention was given to the seed than to the hay crop and it took the place of two cuttings of hay. Even with the high price of hay the past year, results such as the above were not realized where not fed to stock and it would seem that for those not caring for the dairy business a new and valuable product may be produced from alfalfa.

Market conditions should be good for a long time as sub-irrigated lands or that badly infested with Bermuda, Johnson grass or other weeds will not likely be contenders, and too, cheaper shipping facilities will enable the average grower to beat out the present shippers on freight rates.

For the dairyman with fields of badly run down stands it should also prove profitable, as more can be realized from a fair seed crop than is at present from the hay crop and taking the by-product for cow-feed practically no loss in feed would be felt. One particularly good feature is that if the seed market is glutted or in bad shape the crop can be cut for hay and it is in this way that market will likely always stay at a good figure.

TUBERCULOSIS IN CATTLE.

There has been more or less in these columns recently regarding tuberculosis in cattle recently, and the following may be of interest:

Until 1906 tuberculosis was apparently unknown amongst the cattle on the island of Guernsey, from whence comes the breed of that name, but it was that year introduced by cattle re-imported after having been to England for exhibition. This re-importation is now forbidden and drastic laws have been passed, compelling the slaughter of all infected cattle, and granting state compensation. As a result the disease has been practically stamped out, and of the 1,346 animals exported during the past three years, all of which were tested with tuberculin, only 6 were found to be affected.

According to the British Medical Journal, from which the above is taken, the forms of human tuberculosis chiefly caused by bovine tuberculosis (tuberculosis glands of neck, abdominal tuberculosis, and lupus) are consequently exceedingly rare in the island of Guernsey. There is no mention made as to the method of detecting tuberculosis on the Island except that reference to the tuberculin test before exportation.

Some recent investigations on bovine tuberculosis show that occasionally a cow may have tuberculosis in such a form that tubercle bacilli may be emitted in the milk even though the cows to all appearances had sound udders. No tubercle bacilli could be detected in the urine.

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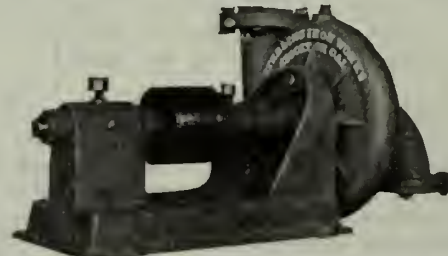
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BUSINESS FARMING IN CALIFORNIA.

(Continued From Page 385.)

loss from grading and rot is expected in each ton of potatoes. His books scent from afar a field when its yielding power commences to fall away, and the next season it is handled accordingly, by plowing deeper, rotating the crop, or fertilizing. And so on, down through every item on the farm is this systematic watch maintained, and the items are many, for Mr. Fuller is a diversified farmer in its broadest meaning. He has several hundred head of beef stock; goats, milk and angora; two large apiaries, squabs, and numerous other irons in the farming fire.

FOOLING THE HENS.—The chicken phase of the business is being handled in the same methodical manner. Whenever any money is expended for feed or new blood, the chickens are charged with it, while the other side of the ledger is battered up by their sale and eggs. But to swell out the credit side of the ledger, a bit of nature-faking is indulged in. These brethren of the barnyard are given two springs or laying seasons. It is done in this manner: Immediately after the first raius, usually about November, the chickens are carted from the river farm, which, being but a few miles from Monterey bay, naturally has a cool climate, to the hill ranch in the southern part of Monterey county where the air is much warmer. Consequently the chickens commence laying very early under the influence of the milder climate. As soon, however, as they stop laying, usually in June or July, back then, they are hauled to the river farm, where they moult and in three or four weeks begin laying again.

Other animals, too, have been found to benefit greatly under change of climate, whether it was from the cool to the warmer clime or the reverse, just so there was a change. This is especially true of horses. After a hard season when an animal is run down, a change of climate will cause it to respond and improve as does the human being under similar circumstances.

As to sheep, he has a rule never to keep one over five years, but builds up the flocks from the younger stock. To enable him to tell the age of a sheep with ease and facility, every animal has the year of its birth nicked in the ear. By this method it is very easy to select aged killers from a large band without disturbing and handling half of them. The notches are put in the ears when they are lambs; for instance, in 1912 two notches were cut, this year three will be put in, and so on until the fifth year, when instead of a notch the point of the ear will be tipped or lopped off. The following year, that is to say, 1916, one nick will be cut again. It is readily seen that the cycle of markings works itself out every five years, so that by 1916 all those sheep marked with one notch in 1911 will have been killed. After the same manner are the ages of the cattle kept, only aluminum tags are inserted in the ear instead of nicks being cut. This does away with buyers saying that an animal is a "short three-year-old" when in truth it is a "long three-year-old," or whatever the case may be.

POTATO STANDARDS.—Potatoes, too, are handled with business precision and with an eye to market needs. In the first place, he familiarizes himself with the demands and peculiarities of his market and then caters to it. Visiting the market in person, he finds, is the only sure way to keep in touch. San Francisco, his principal market, he makes frequently to see how the trade takes his wares, hears their suggestions, listens to their

comments, good and bad, then on his return home endeavors to make practicable use of the ideas thus gained.

In these trips one of the first things he learned was that appearance counts for a great deal in effecting potato sales. As a general rule potatoes are sold in second-hand sacks, often discolored and faded. Although he uses second-hand sacks, nevertheless, by carefully going over them he selects out only the very cleanest for his "number ones" instead of taking them as they come. In this way the poorer grades of potatoes get the dirty sacks and not the best grade. To further attract attention to his potatoes, he takes the common sack twine, dyes it black, and sews the sacks with that. It was ten years ago that he decided on the black string effect, for he realized that it would make his product distinctive and cause them, when lined up before the doors of a commission house or grocery store, to stand out head and shoulders above the other stacks. And it did; his sales have been helped wonderfully; buyers will see the clean sack sewed with the black string and their curiosity is aroused. They will make the first purchase as an experiment, and after that they do not forget the black string brand.

To maintain the standard of the black string brand requires careful handling. When the potatoes are dug they are not permitted to remain long on the ground for the sun to discolor and burn, but they are quickly piled and allowed to cure from four to five weeks. This is done by covering the piles with a six-inch layer of clean white straw, and the potatoes then go into a sweat. For this purpose straw makes the best covering as it permits the air to blow in but shuts out all light. By thus curing the potatoes in a pile, all those that have been bruised will rot while undergoing the sweat and will not get into the sacks for some future consumer to complain about—and rightly, too. Where potatoes are sacked immediately after digging, there will always be a few that will rot; besides, there is more danger of them discoloring before they are cured, because potatoes in sacks are usually not protected from the light as are those in piles. Too much dependence is placed on the sacking alone to keep out the light, while the piled potatoes are covered compactly.

GRADING METHODS.—After the potatoes have cured, those that have been sold for immediate delivery are carefully graded out in the fields, but the rest are sacked and hauled to the railroad warehouses and held until the trend of the market can be told; then they are graded to suit the market. Some years the grading has to be better than in others. For instance, in 1911-12, when the demand for potatoes was especially strong, the grading was not as close as it has been this last season. The rule is, the cheaper potatoes are, the better they have to be graded. But always must a standard for smoothness be maintained, while the size fluctuates. The standard potato as laid down by the demands of the fashionable clubs, cafes, and hotels in San Francisco, such as the Bohemian, the Family and the Pacific Union or the St. Francis, Palace and Fairmont hotels, is a baking potato. It must be smooth, semi-round, and about five inches long, one that will grace a plate when the handiwork of the high-priced chefs is placed alongside it. A potato, on account of its size, that has to be cut is not wanted; a scarred, blunt end looks not half so appetizing when set before the diner as the article in its entirety with unbroken skin. A high-class smaller potato can also be used. Two of these are served on a plate; some stewards prefer two smaller potatoes to one large one; it presents a more balanced appearance on the plate. And



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where one baked potato costs from 10 to 20 cents, it fills, of necessity, an esthetic as well as a gastronomical void.

Even the potatoes used for facing a sack are not overly large, never more than seven or eight inches at the most. And when sacks are being filled, Mr. Fuller finds it to his advantage to always "be on the job," as there is likelihood of other than "number ones" getting into a sack, and it would take out few mistakes of this kind on the part of the hired men to ruin the reputation of the black string brand. And after an article, whether potatoes or apples, gets a black eye with the trade, no amount of excuses, promises and pleadings will right the matter. There is a saying which is rather apropos of the subject at hand: "You get one chance, and only one, to fool the wise buyer." It is a peculiarity of buyers that they are always expecting to be cheated and are disappointed when not and will continue buying until they are; so as long as the farmer can keep them thus happily disappointed, the better it is for all concerned.

HINTS ON SOIL BLASTING.

A method of preparing holes for dynamiting that will save probably more than two-thirds of the present expense of blasting to tree planters is used by the Natomax company in their extensive plantings in Sacramento county. The apparatus is simple, can be made at any blacksmith's and the idea is free to all.

The value of blasting for tree planting is universally admitted where the subsoil is packed. The cost of dynamite is small, but the cost of boring the holes to get the dynamite where it is wanted is often large, for the soil that needs dynamiting is hard to get into. The ordinary soil auger with a diameter of about three inches is slow work. The driving of an iron bar down is very easy and quick, but the trouble has been in getting it up again. This is simply a means of getting it up in about three seconds.

The bar to be used should be six-sided, for a round bar binds in the hole. At the top is an iron cap which gives it there about an inch more thickness.

The other apparatus is an iron wheel weighing about 20 pounds. It may be a pulley wheel, the wheel of an old car, or anything else. Holes are bored on two sides of the wheel close to the edge and chains or ropes attached thereto, so

when two people would jerk suddenly, one on each rope, the wheel would be thrown up from the ground, just as a man attending lodge for the first time might be tossed in the blanket. The wheel used in this way is used as a hammer to drive the bar out of the ground.

The hole in the center is large enough for the bar to pass through, but smaller than the cap on top. It is put just where the hole is to be blasted and the bar driven down as far as it is wanted; then the wheel is given a couple of tosses and the bar is pulled up easily. The whole thing can be done in about three minutes or less, even in pretty hard ground. The holes blasted by the Natomax people are said by them to cost about 11 cents each, powder and all, as against 30 cents for ordinary blasting and a couple of dollars for the hardest kind of ground.

NATURAL DRAINAGE FOR NATURAL WATER.

To the Editor: Will you please answer a question concerning the law of drainage in California? I have a 20-acre lot of irrigated land, which drains into a big slough, and so does the whole neighborhood. Since the Butte canal has furnished the water to irrigate, the waste water also goes in the same way as the natural drainage. But about three miles below the slough ends and pours the water over flat level land, and here the trouble commences. The lower land owners are planning to make a big cut out with big expense and claim the right to tax us for our share of the cost of draining their land; otherwise they say we would be shut out of the drainage for the summer water that comes from the irrigation, but they will agree to let the rainwater pass. Now, what I would like to know is whether there is any law in California that makes an exception of any kind of water you pass into the drainage, rainwater or any other water, as long as it's your natural drain for the land you own? SUBSCRIBER.

Gridley.

ANSWER BY A. E. CHANDLER, PROFESSOR OF IRRIGATION INSTITUTIONS.

The California statutes providing for drainage districts aim to include within each district all lands "susceptible of one general mode of drainage by the same system of works." The statutes make no reference to the source or origin (natural or artificial) of the water which must be drained.

Under recognized principles of general law in this State, an upper land owner may make use of the natural channels for the drainage of storm waters accumulated upon his lands, but he has no right to artificially increase the amount of water so drained. It is believed that the waste water from an irrigated field would be considered an artificial increment, and that the upper owner could be restrained by a lower owner whose lands were injured by the waste water.

University of California, Berkeley.

THAT ALFALFA LEVEL.

In last week's issue, in the excellent article by F. W. Kerns on laying out land for alfalfa, there was a little confusion in the text describing the use of the leveling triangle. Near the middle of the first column there was an omission which made the instructions unintelligible. We give the correct text with connecting words as follows:

"Raise or lower one end of DE by means of the thumb-nut until the bubble is in the center. Then reverse the triangle end for end on the pegs: If the bubble remains in the center, the adjustment is complete," etc.

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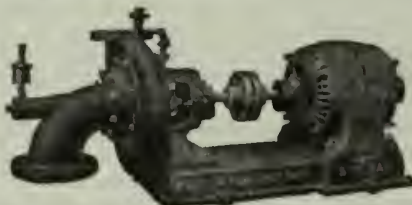
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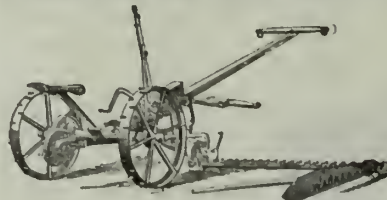
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GENERAL AGENTS.

STOCKTON, CAL.

Looks as if There Might be an Accident.

To the Editor: My respects to Mr. Pillsbury and thanks for his intimating that I am narrow minded. Perhaps for the sake of the argument I had better admit the statement and as a ground for it, say that our environments have been different. I was born upon a farm, have lived upon a farm all my life, and since the age of 17 have done all kinds of farm work, from driving scraper team, pruning vines and trees, running a harvester, packing shed, gas engine, etc. In fact, my experience on the farm has been actual experience, while yours, if I am correctly informed, has been of the newspaper variety which in the opinion of most actual farmers is nine-tenths hot air. Therefore, while I am trying to protect myself and neighbors, you, acting upon a salary from the State, are trying to spend other people's money for them.

When you say in your article that "A right of review by a court of justice as to the facts in any controversy over compensation would be tantamount to a denial of justice to the hurt man, etc," you are in effect saying that all courts of justice are dishonest and that the three members of the Liability Accident Board are the only Simon Pure in the State.

You say that your method is a statesmanlike way of handling these matters. I suppose you base this on the hope that your talk of a dollar rate, that in trial it makes good. If, however, your funds, because of the low rate to be used, in trying to get us into your plan, become as in the State of Washington, bankrupt and where the relatives of the dead are standing around waiting for the State funds to make good, or as in the case of Germany, where the rates have been raised many times from the low ones first offered; or as in England where the farmers are now passing resolutions denouncing compulsory insurance, I say if it proves out like these will you be a statesman or just a plain false alarm? There has been no hubbub in the United States because nearly all of them have exemplified the farmer.

Your answer to the point I made that you were trying to free yourself from responsibility while trying to cinch other people is just the one I wanted you to make. Our stand for the farmers is different. We are perfectly willing to be responsible for our misdeeds and mistakes, but do not wish to stand for the other fellows. You are only willing to stand for your misdeeds but want the law to exempt you from your mistakes, while those dependent upon the dead and the injured themselves, stand around without compensation, while the State collects enough to cover your mistakes. Mr. Pillsbury, you remind me of the Jew in that old story of Senator Perkins. A man wanted a coat. Trying one on in the store of the Jew he ran out the door without paying for the coat. The Jew gave chase yelling stop thief. An officer joined in the chase firing at the fugitive. The Jew, fearing his coat will be hurt, changes his cry to, "shoot him in the pants, the coat is mine." Today when the farmers wish to get out from under the injustice you and others are trying to pile upon him, it is stop thief, but when it may possibly hit you, why the coat is yours.

Now Mr. Pillsbury, I would not have used some of the expressions I have used had you not taken the privilege to read between the lines and state that you assumed that I as representing the farmers, wished to send the injured to the poorhouse. A statement I never made or suggested. In fact you well know that in my personal letter to you of Feb. 25 I stated to you that "I was perfectly willing that society in general should pay for these injuries, with a graduated scale by which possibly labor should pay its part." Do you, Mr. Pillsbury, think that in a thousand years you can convince any right minded person, that if a farmer furnishing his farm which according to you, as I recollect it, has a rental value of some \$800.00 odd dollars, and his labor and experience which would have an average value of not to exceed \$500.00 per year, or a total average value of not to exceed \$4.00 per day, covering experience, investment and labor; if, as I say this farmer living and working on this basis goes to town and hires a brick mason, who furnishes a trowel, level and his experience and whose wages are \$7.00

per day, and this man by his own carelessness gets hurt that the farmer getting the \$4.00 per day should pay it all, even if it took the last dollar he had to feed his family with, while the mason lives a life of ease on his 65 per cent of his wages.

In regard to the fear you express that no one can be found to take your place upon the Commission, I believe, Mr. Pillsbury, that there will be just as many ready to take your place at 3600.00 per year with expenses as there will be to take the farmers place if you and other classes keep piling discriminatory laws upon them.

I personally know of many places that have either been sold or rented to the Japs, since the passage of the Roseberry law. I wish to say to you that I never heard stronger language used by anyone than that used by the many leading growers in meeting assembled in Sacramento and other places during the past few weeks. And if the attempts to cinch the farmers are kept up, of which your law is not the only one, you and the people behind you will get yours from the 90,000 farmers and their families in this State.

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Olives in California.

[By F. T. BIOLETTI, in Circular 86 of the Experiment Station, Berkeley.]

Uses.—The Most profitable use of the olive is the making of ripe pickles. Our green pickles, at present, do not compete successfully with those imported from Spain. Oil is made from fruit too small for pickling, and from that damaged by frost. It is profitable as a by-product of the pickling industry.

Climate.—The olive requires a warmer winter than the grape and a dryer summer than the orange. In California the olive region coincides very closely with that of the raisin Muscat. A temperature of 14°F. is the lowest that most varieties can stand, even when most dormant. The cool and foggy summers of the coast region are unfavorable.

Soil.—Any soil that is well drained and not too shallow will support the olive. It gives the best results in moderately rich, light soils, where the roots can penetrate deeply. Very heavy or undrained soils are unsuitable. Abundant lime is favorable.

Propagation.—Young trees for planting may be started from seed or from cuttings taken from any part of the tree. The sprouting of the seeds, which is difficult, may be facilitated by soaking for several hours in a 10% solution of caustic potash, or by slightly crushing the shell. Seedlings are grafted in the nursery when one or two years old, and are ready for transplanting the following year.

Most nurserymen's trees are raised from "tips" or the extreme ends of the branches. These are cut in the spring, about five inches long, all the leaves, except the top two or three, removed, and then be rooted in sandy loam under glass. cuttings of any size or age can be rooted directly in the nursery, but are difficult to start if of smaller diameter than $\frac{3}{4}$ inch.

Grafting.—Young seedlings are grafted at the surface of the ground. Scions of two-year-old wood are used. Cleft, side, or tongue grafting will succeed. The grafts are tied with raffia, well waxed, and covered with soil. Larger seedlings may be twig-budded just above the surface of the ground. Old trees may be crown grafted in the branches, or twig-budded in sprouts produced by cutting off the branches the year previous. Grafting should be done just before the starting of the sap in the spring, budding a little later.

Care of Orchards.—The olive requires the same cultural treatment as other fruit trees in California. The soil should be plowed as deeply as possible before planting. Hardpan soil can sometimes be made suitable by the use of dynamite. Thorough cultivation and sufficient water are necessary. Irrigations are preferably few and copious.

Pruning.—During the first five or six years, the sole object of pruning is to direct the growth of the plant into building up a "skeleton" of proper form. This should consist of a single, straight clean trunk, two or three feet high, bearing on the top five or six main branches, symmetrically placed. Every shoot or branch which is not needed permanently should be removed as soon as possible, in order to avoid the necessity of large wounds. Twigs are left on the trunk only so long as they are needed to protect it from the sun.

In pruning bearing trees, the branches are first thinned sufficiently to allow light to enter and promote annual growth in all parts. The annual growth of the preceding year is then cut back about one-half, a little more with weak trees, and a little less with strong. Without pruning, the crop is small and poor. With

irregular pruning, the crop is irregular. New growth is necessary each year for annual crops. Pruning is the only method of "thinning" and is essential for large fruit.

Harvesting.—The crops of profitable orchards vary from one-half to four tons per acre. Large olives intended for pickling are gathered carefully by hand into padded baskets or bags, hung on the shoulders of the pickers, and hauled to the factory in barrels containing water. The cost varies considerably with the size of the olives and of the crop, and averages about \$15 per ton.

Oil olives are preferably gathered in the same way, but are often shaken and raked off the tree and collected in sheets spread on the ground. Unless the olives can be worked immediately, this method gives inferior oil.

Diseases.—The only serious disease infecting the olive in California is the olive knot, which does much harm only to young trees, or to trees in over-irrigated soil. Some varieties are affected by some little-understood fruit rots, which sometimes cause loss locally. Black scale is very troublesome in foggy coast regions. In the interior it gives little trouble.

Varieties.—Only olives large enough for pickles are profitable. The size of the fruit depends on the variety, the location, the soil, and on the methods of pruning, cultivation, and irrigation employed.

Mission.—The principal and standard variety of California. The fruit is large, firm, of typical olive shape and deeply colored when ripe. It ripens late in November in the earliest, but not until February in the later localities. The tree is vigorous and bears well in most localities. There is much variation in Mission trees and it is important that stock for propagation should be taken only from trees of known good performance. It is preferred by the pickle manufacturers because their methods are adapted to this variety. Its main defect is its late and irregular ripening which exposes it to injury from frost in most localities and necessitates several pickings.

Sevillano.—The variety from which the largest "Queen" olives of Spain are made. When ripe, it makes excellent black pickles. It resembles the Mission in shape, color and flavor, and differs from it in its larger fruit and narrower leaves. It has not been widely tested, but bears well in some places, and the fruit brings a large price. It ripens early, but is said to be sensitive to frost.

Manzanillo.—This variety has been planted extensively. The fruit is a little larger than that of the Mission and deeply colored. Its short apple shape is considered undesirable, but the quality of the ripe pickles is unexcelled. Its chief merit is that it ripens early. It bears well in favorable locations, but fails in others. It is subject to a kind of soft rot in the hotter localities.

Ascolano.—This variety has very large fruit, exceeding even the Sevillano. It has been planted in small quantities in several localities and is everywhere reported as a good bearer. The fruit is of the shape and size of a French prune. It contains very little bitterness or color and requires special care in pickling. Some large plantings of this variety have been made lately.

Other varieties producing large fruit, but little tested, are Obliza, Macrocarpa, Picholine (true). Others sometimes large enough for pickling are Columbella, Regalls, Gordal, Atro-rubens, Verdale, Santa Caterina. The "Redding Picholine" is a small seedling, largely planted by mistake, but worthless except as a grafting stock.

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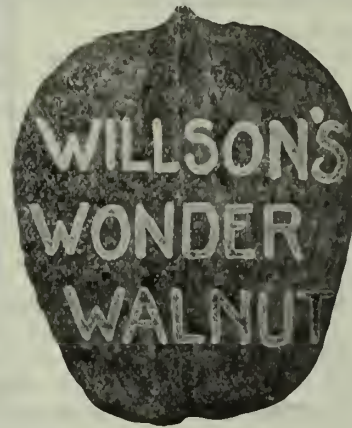
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If more than one variety is planted, they should be arranged so that they can be harvested separately. The utility of cross-pollination is probable, but not demonstrated. Better bearing has been noted following the introduction of an apiary into the orchard.

PICKLING.

The pickling of olives involves three steps: 1. Treatment with lye to neutralize the acidity and bitterness. 2. Repeated soaking in water to remove the excess of lye. 3. Salting by soaking in brines of gradually increasing strengths.

(1) Neutralization. Soak the olives for 12 hours in a solution made by dissolving 1½ pounds of caustic potash in 12 gallons of water. Very bitter olives may require a second treatment with fresh lye (some Mission, Manzanillo, Sevillano); sweeter olives may require a weaker lye (Ascolano, Columbella). With soft olives, 1½ pounds of salt should be added to the lye. The olives should be kept submerged by means of a floating cover and the lye drawn from the bottom and poured over the top of two or three times to insure equal treatment.

(2) Soaking. When by examination of the color of the flesh of the olives, it is found that the lye has penetrated nearly to the pit, they should be removed to pure water. This water is renewed at least once a day until the lye is removed, which requires two or three days. With soft olives, a brine containing about 2 pounds of salt to 12 gallons of water should be used for removing the lye.

(3) Salting. When the lye and most of the bitterness have been removed, the olives should be placed in stronger brine. If the olives are to be canned or bottled, a brine containing about 5 pounds of salt to 12 gallons of water is sufficiently strong. If they are to be kept in barrels, 10 or 12 pounds of salt will be needed. The olives must be prepared for the strong brine gradually by being placed in new brines every three to four days. Each brine should be about 2% stronger than the last.

Precautions.—Strong lye tends to soften the fruit. A second treatment in weak lye is better for bitter olives than a strong lye. Salt has a tendency to harden the fruit and can be used to counteract the softening effect of the lye with very ripe olives. Strong brine will shrink and shrivel the olives unless they are prepared for it by solutions of gradually increasing strengths.

Color.—With ripe pickles, the object is to have the color as uniform and dark as possible. Uniformity is obtained by pickling each variety by itself, by having the fruit as evenly ripe as possible, and by exposing the olives to each solution in as uniform a manner as possible. Spotting comes usually from unevenness of the lye treatment, and especially from allowing some olives to float on the surface. Depth of color is obtained by having the olives thoroughly ripe. By exposing the olives to the air for several hours between the various solutions, both the depth and uniformity of the color are increased by oxidizing and browning the flesh.

With green olives the air should be excluded as much as possible, until the final brine is reached. A little vinegar improves both the color and flavor of green olives. Some picklers advise the addition of a few bay leaves.

VICTORIES OVER FOREST FIRES.

The Department of Agriculture has been figuring up the losses by fires in the National Forests for the calendar year 1912, and finds that they were the lowest of recent years. Less than one acre to every thousand of timbered lands was burned over, and the total damage

is estimated at \$75,290, or less than one dollar to every 2000 acres of area.

The good record is attributed to, first, favorable weather conditions in most localities, and second, the increased efficiency of the fire-fighting organization. As Congress makes available the means for extending the system of communications on the National Forests, the equipment of trails, roads, telephones, and lookout stations is yearly enlarged, and the fires, it is said, are discovered more quickly and fought more rapidly.

An especially good showing was made by the Forest officers last year in extinguishing fires outside the National Forest boundaries. Such fires constituted more than one-sixth of all fought by the Forest rangers and guards. About nine-tenths were extinguished before they touched the Forests. Of the fires within the Forest boundaries, more than 18% were on lands in private ownership. Nearly one-fourth of the extra expenditures due to fighting fires—that is, expenditures outside the time of the regular Forest force—was incurred in fighting these fires.

Lightning caused more fires than any other agency, followed by railroads, campers, and incendiaries, in the order given. The greatest losses occurred in Arizona, Arkansas, and California, in which States there was also the largest proportion of fires caused by lightning and by incendiaryism. About 27% of all the fires were started by lightning, and about 38% were due to carelessness. The proportion in each case was practically the same as in the previous year.

The total number of fires was 2,472, as compared with 3,369 in 1911. They burned over, in the aggregate, 230,000 acres, as against 780,000 in 1911. California led all States in total number of fires, and in the number caused by lightning. Arizona stood second in both of these classifications. Arkansas stood fourth in total number of fires, and first in those of incendiary origin, with California second. The one National Forest in Kansas had only one fire, which burned over less than ten acres and cost \$1.11 to extinguish. North Dakota had no fires on its one small Forest.

Of the 2,472 fires, over 75% were put out before 10 acres were burned over, and nearly 50% before one-quarter of an acre was covered.

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The Canning of Apricots in California

[Graduating thesis of JUSTO P. ZAVALLA, University of California.]

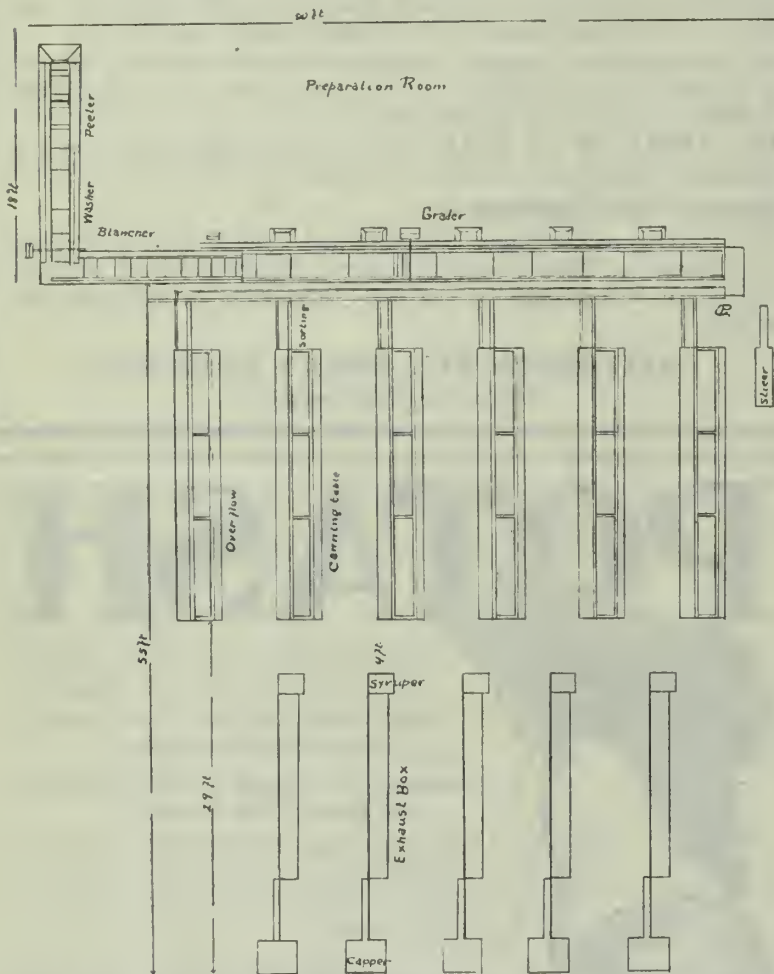
(Concluded from page 363 of last week's issue.)

CANS.—This question is of great importance in the process of the canning of fruit. The sizes of cans which are used on a large scale have been already mentioned. Now, we have to make some economical considerations. Until recently soldered cans were used to a great extent by all canneries. This sort of can may be styled "old type," in order to establish a difference between those called "Sanitary Cans."

A. Old Type. This type of can has the following inconveniences: (1) It is more expensive. (2) It is less hygienic. The

leakage, which may be classified as of two kinds: the large leak which allows the entrance of bacteria at once and causes a hard swell in a very short time; and the small leak which may or may not even cause a hard swell, but which is almost certain to cause a "springer" in time. If the small leak is large enough so that any bacteria at all can gain entrance, the food will ultimately be spoiled. But there are some leaks which are so minute and in such a position on the can that bacteria or yeasts never gain entrance. Such cans may remain perfectly flat on the ends for four or five months after packing, and then during the next spring or summer complaints will come in to the packer that some of his cans are slowly swelling.

Plan showing the general arrangement of the machinery in a Canning Factory



Ground Plan of Cannery, Showing Arrangement of Machines and Appliances.

product is in contact with the tin, which causes chemical alterations of the food.

B. Sanitary Cans. This type of can has the following advantages: (1) It is less expensive, because tin is used in less amount than in soldered cans. (2) It is more hygienic for the reasons given in connection with the first type of can.

[At this point Mr. Zavalla undertakes a very careful and detailed discussion of the question, "Is it more economical to buy cans outside of the cannery, or to make the cans in the factory?" His conclusion is that it is not economical to manufacture cans at the cannery; and he cites specifically the machines required, the cost of operation, the loss from not keeping the expensive machinery in constant use, etc., etc., to establish his contention. This matter is too technical to interest those who do not contemplate going into the canning business, and it is therefore omitted.—EDITOR.]

THE CANNERY WAREHOUSE.—In this department the cans already cooked are piled up in groups. In this condition they are allowed to remain for twenty-four hours, in order to know if there is any

Such cans very seldom get beyond the "springer" stage, the explanation being as follows:

The vacuum being broken by the entrance of air into the can, any further gas which is generated will cause the ends of the can to swell. It is a peculiar fact that the very leaks which will allow the entrance of air into the can from without will not permit gas to escape from within. Usually the first generation of gas inside of the can, if the leak is very small, effectually closes the opening. Now, as the cans stand on the grocer's shelves after the vacuum is broken, the action of the fruit acid on the tin begins to manifest itself. The can, being perfectly full of air when the fruit acid attacks the tin, contains no room for the hydrogen gas which is generated by this action. For a while the generation of this gas is likely to be rather brisk. It cannot get out of the can and therefore develops a pressure within, with the result that the ends being most susceptible, will slightly bulge outward. The chemical action which takes place between the contents and the container

is decidedly limited. As the action progresses, the fruit acid, through the formation of salts of tin, loses its power to dissolve more tin and also the pressure of the gas, which has been generated, retards the chemical action as the pressure increases. The result is that a can, which is undergoing this process, soon reaches a point of equilibrium which, under similar conditions, will not change. It remains a "springer" and gets no farther. If the temperature rises, the "springer" becomes more pronounced, while if it falls the ends may snap back and appear flat, only to spring again at the first increase in temperature. This condition, of course, depends entirely on the expansion and contraction of the gas within the can. The action of the fruit acid on the tin may largely be prevented by the use of the sanitary inside enameled can, if the coating is perfect. In this case, the tin is so well protected by the enamel that it is not exposed to the action of the fruit acid, and consequently there is practically no gas generated. The leakage of the cans is easily noticed because they have a particular sound. The cans, under the conditions already mentioned, are of an inferior commercial value due to the fact that they have to be submitted to a re-cooking process in order to locate the leakage.

The cans in good condition are painted and one of their sides is covered

with the etiquette. The etiquette, or label, bears the name of the cannery and the class of fruit that the can contains.

The warehouse department has a capacity for 4,500,000. The daily production of the Libby McNeill and Libby Cannery is about 45,000 to 50,000 cans in fifteen hours work.

This is an epitome of the whole work done in the mentioned cannery. I hope that this succinct compilation may be of some interest and utility.

COST OF MACHINERY.—The following figures give an idea of the amount of money required to equip a cannery to run 50,000 cans of fruit per day, with no provision for can-making, of course:

3 Combined syruper and ex-	
haust boxes, at \$550 each.....	\$ 1650.00
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elevator for same.....	745.00
6 Iron Porcelain lined machin-	
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\$275 each.....	1650.00
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6 Box Trucks, at \$11 each.....	66.00
1 Fruit Slicer.....	300.00
1 80-H. P. Tubular Boiler.....	1000.00
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Pasting the Red Spider.

[Several readers in the San Joaquin Valley are manifesting concern about the red spider earlier than usual because of grievous work done by the pest last year. Many good suggestions may be gained by fruit growers from work done for the hop growers by William B. Parker, formerly of the University of California and now Entomological Assistant in the United States Department of Agriculture. The results are published in Circular 166 of the Bureau of Entomology. We select what seems to us the most significant statements.—EDITOR.]

During spraying hops for control of red spider in 1912, some trouble was experienced in obtaining an effective spreader for the lime-sulphur solutions, due to the fact that soap forms a precipitate with the calcium polysulphid. While testing the following combination—flowers of sulphur 15 pounds, water 100 gallons, and flour paste (as a "sticker") 4 gallons—a formula advised for red spiders by W. H. Volck of the California Experiment Station, it was observed that the mixture spread over the leaves very readily. The flour paste was evidently the spreader and was accordingly mixed with the lime-sulphur solutions. The result was a smooth mixture which spread over the foliage very readily and gave unusual results as an arachnicide. The proper proportions were found to be 4 gallons of paste (4 pounds of flour) to 100 gallons of spray.

From contrasting experiments it is very evident that the use of flour paste greatly increases the efficiency of the lime-sulphur spray and that without the paste the spray was very ineffective. These results were substantiated by other experiments and, by a check experiment with the flour-paste, 4-100, used without the lime-sulphur, it was found that the increased efficiency was mainly due to the spreading effect of the paste.

Having proved a most efficient, cheap, and convenient spreader for the lime-sulphur solutions, some experiments were conducted with flour paste in combination with nicotine sulphate upon the hop aphids and it was found that flour paste, 4-100, is a very effective spreader for nicotine sulphate.

During some spraying experiments with nicotine sulphate and flour paste upon the hop aphids it was observed that many of the smaller aphides had become pasted onto the leaves. From this data it was assumed that a stronger solution of paste would be effective against the more delicate aphides and mites, and experiments were conducted upon the red spider which prove that flour paste, 8-100 and 10-100, is effective. The paste has no effect upon the eggs, however, and in controlling the mites a second application 7 to 10 days after the first is necessary to catch the mites that emerge from the eggs. In moderate weather allow 10 days and in hot weather 7 days between applications.

A few preliminary experiments were conducted with this material upon blister mite which was attacking pears, with very encouraging results, and it is very probable that flour paste, 8-100, will give good results when applied for any of the small leaf-feeding mites.

The last of June, 1912, flour paste, 8-100, was applied for the hop aphids (then in the younger stages) with a 97 per cent efficiency. These were encouraging results, but later experiments proved that, although the solution was effective against some very delicate species and the younger stages of the hop aphids, it was not effective against the stouter aphides.

When the paste was dry the mites and

more delicate aphides treated were found firmly pasted onto the leaves. Later the paste film was observed to crack and partially scale off, leaving the leaf free to perform its natural functions.

The neutrality of this spray was proved by the fact that when applied upon the foliage and blossoms of the hop in proportions as high as 12 pounds to 100 gallons no injurious effect resulted. When sprayed onto the burrs and delicate hop cones it did not prevent pollination or injure the appearance of the scales.

Flour paste has proved effective when applied for red spiders upon the following plants: Beans, chrysanthemum, hops, cucumber (greenhouse and field), pumpkin, pear, prune, roses in field. The flour paste was not satisfactory when used for the red spider on greenhouse roses (did not spread well), greenhouse carnations, or field sweet peas.

PREPARATION OF PASTE.—To prepare the flour paste, mix a cheap grade of wheat flour with cold water, making a thin batter, without lumps; or wash the flour through a wire screen with a stream of cold water. Dilute until there is 1 pound of flour in each gallon of mixture. Cook until a paste is formed, stirring constantly to prevent caking or burning. Add sufficient water to make up for evaporation.

Flour paste may also be prepared by stirring boiling water into a moderately thin batter until there is 1 pound of flour in each gallon of mixture and allowing it to stand until the starch is all broken down.

If the paste is not sufficiently cooked, the resulting spray will not be effective, and if overcooked the paste will harden when thoroughly cool, and will not mix with water very readily. Usually, however, the paste is used as it is prepared, and over-cooking is not a disadvantage.

When mixed in the spray tank flour paste has a tendency to settle, and in order to do satisfactory work agitation is necessary. This is but a slight disadvantage, and is necessary with most materials.

Flour paste appears to be a very effective spreader for lime-sulphur and nicotine-sulphate sprays. Cheap flour can be purchased for less than half the cost of whale-oil soap. It is always obtainable, and having no odor it is less offensive to use than the whale-oil and fish-oil soaps. When used alone at the rate of 8 gallons (8 pounds flour) to 100 gallons of water it is effective against several leaf-feeding mites and some very delicate aphides. The possibility of its use as a spreader for lime-sulphur sprays for scale insects and fungi and as a "sticker" for arsenicals has not yet been worked out, but from observations during the past four months it is believed that it may have some value along these lines.

"John," called out Mrs. Billus, "are you ready to put up those new curtain fixtures?" "I am beginning to put them up now, Maria," was the response that came in a metallic tone of voice from the parlor. "Children," said Mrs. Billus, with nervous haste, "run out and play!"

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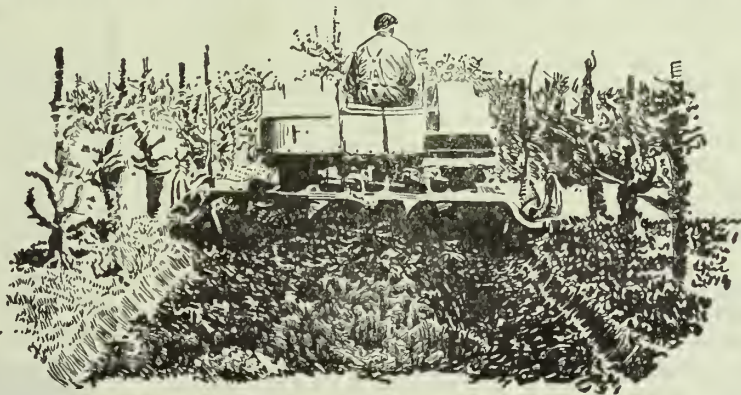
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185



Winter Sports of the Vine Hopper.

To the Editor: Can you tell me if there is any remedy for destroying the vine-hopper that is working on my rose bushes? The leaves that were a healthy green at first are becoming light and spotted and some of the bushes are looking very sickly.—R. M. C., Clovis.

Your question reminds us that it is timely to nudge our valley readers on the vine-hopper, whether it is working on their roses or not. If it were feasible to kill the hoppers during their winter sports, the vine-growers would have much less summer trouble with them. Therefore we ask careful attention to the following paper read at the Fresno Fruit Growers' Convention by Prof. H. J. Quayle of the University Experiment Station:

INTRODUCTION.—The commonest and most widely distributed insect attacking the grape in the United States is the grape leaf hopper, or "vine thrips," as many California vineyardists are inclined to call it. Taking the country over, it is no doubt the most serious of all grape insects. It is true that in this State the phylloxera has done more actual damage, but outside of California the phylloxera is not a pest in this country, although it is native to the States east of the Rocky mountains. But the losses from phylloxera are largely passing away before the advent of resistant vine planting, while the insidious hopper is ever present, and, with the extension of planting in different sections, is increasing rather than diminishing.

Because of the more or less inconspicuous nature of hopper work, unless of course they are abundant, and the fact that they are present in some numbers every year, many growers are inclined to take hoppers as a matter of course, an inevitable factor in the business, like adverse weather conditions, something beyond our manipulation and something regularly charged to the general account of profit and loss. It is true that so long as the hoppers are present in small numbers, the injury they do is not important, and in such cases it is not worth while attempting anything in the way of control. But where their numbers are excessive, then the injury they do is considerable and a large toll is exacted from our vineyards.

DISTRIBUTION.—Outside of California this insect is most important as a pest in the grape belts of Ohio, Pennsylvania and New York. Here in California it occurs in largest numbers in this great interior section, the San Joaquin and Sacramento valleys. It also occurs in the coast valleys but is seldom injurious there; and also in southern California, but south of the Tehachapi it is most serious as a pest in the Imperial valley.

NATURE OF INJURY.—The first indication of injury by the grape leaf hopper is represented by the pale spots scattered over the leaf's surface. As the feeding continues these pale areas become more abundant and finally the entire leaf is a pale silvery color. These leaves later turn brown, become dry and functionless and at last drop from the vine. The dropping of the leaves, especially in the case of young vines, may begin as early as April or May. In such cases of early defoliation the work is due to the overwintering hoppers. With the appearance of the young the number is greatly increased, and thus the injury becomes still greater. By mid-summer the second brood appears and the numbers are again greatly increased. If each of the females of the overwintering hoppers lays 100 eggs and half of this number hatch into females which in turn lay 100 eggs, the progeny from a single individual at the

end of the season will amount to 5000. Thus, for each hopper that comes onto the vine in the spring there will be, if all conditions are favorable, 5000 hoppers by mid-summer. This accounts for the hoppers appearing literally in swarms by mid-summer and later.

It is not until this time that most growers are at all concerned about the hopper injury, and it is then too late to do anything very effective. At this time a large portion of the interior of the vine have all the leaves dried and brown and many more have fallen off. This injury or complete destruction of the leaves prevents the berry from maturing properly, for it is in the leaves that the sugar and consequent sweetness and flavor is manufactured. Injury to the leaves also has its effect on the growth of the vine, the canes fail to ripen normally for next year's wood, and many of the buds fail to develop in the following spring. In cases of severe hopper injury, therefore, not only is the immediate crop reduced both in quality and quantity, but the vine may be more or less permanently stunted or even killed.

LIFE HISTORY AND HABITS.—If in going through the vineyards at this season one kicks up the leaves that may have gathered in bunches by wind, or disturbs any of the green growth in the vineyard or along the bordering roadsides and fences, there will most likely be seen small, pale colored insects that fly up before you and soon settle close by again. These are the hoppers as they are found in the winter season. During the warmer and brighter days they will be found actively feeding on a large variety of plants that may be growing within easy range of where they were feeding during the summer. With the cold wet days they do little or no feeding and remain much less active, under leaves or rubbish, or protected by the growing plants. At no time in the winter, however, do they feed so voraciously as during the breeding season in the full warmth of summer.

As the foliage appears on the vine in the spring, these overwintering hoppers leave their more varied winter food plants and attack the vine exclusively. By the time the shoots are four to eight inches long all the hoppers have deserted their winter plants and now remain on the vine until the leaves fall in the autumn. After feeding for three or four weeks on this new growth in the spring, the overwintering hoppers begin egg-laying. The eggs are deposited on the under side of the leaf and within the tissues. They are inserted here by means of a saw-like ovipositor and covered as they are on all sides they are beyond the reach of any spray. The number laid is 75 to 100; they hatch in from 15 to 20 days, and there appears the young hopper, which is a small pale colored creature without wings, and is called a nymph. Feeding is immediately begun; the insect grows, molts or sheds its skin five times, after each molt the wings appear larger until they are fully developed and the insect is mature, which requires a period of about 18 days.

The season is now about the first of June (this varying with the locality and year) when the first of these that have hatched from eggs in the spring have wings and fly about more or less actively. This is the time, as I shall point out later, when spraying can be done to the best advantage for the young or nymphs. At this time also the old hoppers that have remained over winter begin to die off and are all gone by mid-summer. This second or spring generation deposits eggs in July and August and die off in September and October. The eggs that these have

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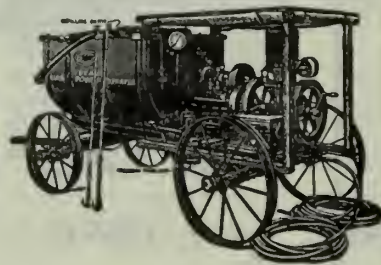
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deposited give rise to young which are maturing in August, September and October, and these stay with the vine until the leaves fall, when they take to the more varied diet during the winter and come onto the vine again in the following spring. There are thus two generations in a season, the young of the first beginning to appear about the first of May and the young of the second generation from about the first of July or sooner in the earlier sections.

CONTROL MEASURES.—From the practical grower's point of view the most important thing concerning a pest is how to control it, or how to keep it under subjection to the extent of not seriously damaging the crop. It should be understood at the outset that the grape leaf hopper is a very difficult insect to handle successfully, and in my opinion the last word along this line still remains to be said. The most important factor that militates against successful control with this insect is its activity in the adult stage. The full-grown hoppers readily escape before any spray. Spraying is likewise of no avail against the eggs, for these are securely tucked away beneath the surface tissue of the leaves. Spraying will, however, kill the young. Another drawback to the control of this insect, or any grape insect, for that matter, is that the expense is likely to extend too far into the margin of profit from the crop.

GENERAL CULTURAL PRACTICES.—Some growers believe in plowing the vineyard in the winter or early spring with a view to reducing the hoppers. Plowing will not kill the hoppers directly, for they are active enough to escape readily before the plow. During cold or wet weather when the hoppers are more dormant a few may be turned under, but, generally, plowing is not done under such weather conditions. Plowing may indirectly affect them, however, by depriving them of food in turning under the green growth in the vineyard or of destroying their hibernating places as represented by the accumulation of leaves or other rubbish. Turning sheep in the vineyard in the fall to eat the leaves, as is sometimes practiced, has the same result.

Plowing and sheeping, therefore, result in driving the hoppers elsewhere for food or shelter during the winter season, without actually killing them, at least in any significant numbers. There is nothing to assure the grower that his vineyard may not be infested again in the spring from the bordering roadsides and fences, or from neighboring vineyards. For such measures to be appreciably effective it would require a general community effort without considering whether this would be the best general practice for the vines. It appears to be a wise procedure to get as much material turned under in the spring as possible.

SPRAYING FOR YOUNG OR NYMPHS.—The young hoppers may be very readily killed by means of a spray applied to the under side of the leaves. The nymphs are readily killed by a spray, because they do not fly and hence cannot escape before the spray. The spray also strikes their bodies and the breathing pores directly, whereas with the adults the wings are held roof-like and very completely protect their bodies from the spray material.

The time to spray for the nymphs is just before the first of them become winged, and this will be during May and the first part of June, depending upon the season and locality. The kind of spray is not important, for several different materials will kill the nymphs. Foliage injury must of course be avoided. The materials probably best answering these requirements are whale oil soap and tobacco. Whale oil soap may be used at the rate of 15 pounds of whale oil soap to 200 gallons of water. The most de-

sirable form of tobacco is the commercial blackleaf, for it contains a uniform nicotine content. Black leaf 40 may be used as follows:

One pint blackleaf; four pounds whale oil soap; 200 gallons water.

In the grape sections of the East the final recommendations of the Bureau of Entomology at Washington for the control of this insect is to spray for the nymphs with tobacco. In work carried on with this insect in this State five years ago, spraying was recommended as a successful means of controlling the nymphs. But it was also stated that man adults are present at the same time which would not be killed by the spray and that there were also eggs on the leaves that would not be killed. The presence of eggs and adults which are not affected is the most serious objection to spraying, although there are enough nymphs killed to materially reduce the numbers of the succeeding generation.

The canes of the California vines are also pretty long by the first of June, so that the problem of hitting every nymph on the under side of every leaf is not an easy one. Moreover, the breeding period seems to be more prolonged than in the East, where the seasons are definite and hence there are more eggs and full-grown hoppers that are not killed.

HOPPER-CATCHERS.—It was with a view to capturing the hoppers in the early spring before any eggs would be deposited or before any injury was done that a screen box was devised. This consisted of a square frame work covered with wire netting, open on one side and with a galvanized iron tray forming the bottom with a V-shaped opening which allowed it to be pushed onto the vine, at the same time the hoppers being jarred off and caught in the crude oil that was smeared on the screen. This was intended for vines headed some little distance from the ground, for most of the hoppers fell on the tray or low down on the sides. This sort of an apparatus is not satisfactory for vines that are so low-headed as many of them are in this vicinity, nor is it applicable for trellised vines. With the right shaped vines such a cage can be used very successfully and 90% of the hoppers captured at a time when for each one taken it means, as I have shown, possibly 5000 less later in the season.

It was thought that a cheap apparatus as I have described, that anybody could make, would appeal to practical growers, but that is not the case. California growers have an inherent desire to do things on a large scale, and anything that can be pulled by four or five, or a couple of dozen horses, or a caterpillar engine, comes nearer to satisfying their idea of how things should be done. For this reason I have some hope that such a machine as Mr. Driver of Dinuba has devised may be made to work successfully. The idea of drawing the hoppers away from the vine by suction is an old one and has not yet been thoroughly tested out. I do not believe, however, that mid-summer or later is the time to operate such a machine. Great numbers of hoppers are of course captured at this time, and it is spectacular enough, but they should be captured before they become so abundant, and before the vines show such conspicuous injury as they do at this season. By this time practically all the injury has been done and all the young have developed, and there is no assurance that they may not be abundant there the following year.

ESPECIALLY THE WINTER HOPPERS.—If such a machine would take the overwintering hoppers, at a time when the shoots are six to eight inches long, before any damage was done and before breeding commenced, it would be the solution of the hopper question. I hope those interested in such a machine will try it early

next spring. Some preliminary experiments in spraying into a canvas canopy pulled over the vines also gave some promise of control at this season.

Those of you who came to hear definite and specific recommendations for the successful control of the grape leaf hopper I fear will go away disappointed. I do not believe in giving such until we have them and they are thoroughly tested out in practical work. Your experiment station started an investigation of this insect itself, since this is essential for any control work, and these will continue at least two years. During the first year it was intended to study the insect and its life history, and the second year to test various methods of control. A portion of a year's study was made and all the important facts about the insect itself were found out, but after the first year the funds for investigation lapsed and no adequate opportunity has since appeared for continuing the work.

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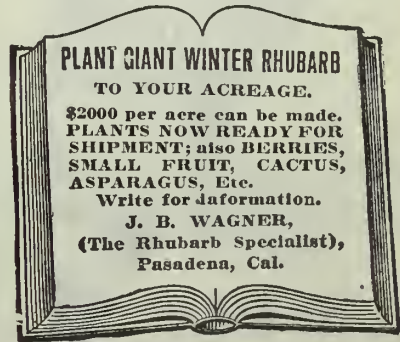
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A Pioneer Stockman Departs.

To the Editor: Patrick Henry Murphy, one of the pioneer residents of Sacramento county, passed away at his late residence in Perkins, Cal., the 13th inst., after a lingering illness. He came to this State in boyhood, but even then was an active participant in the industrial activity which has marked his career throughout. His home ranch on the Jackson road near Perkins he settled upon in its primitive state as long ago as 1859, and during the long interim of years has brought his land into a high state of cultivation. Most of the 160 acres comprising this ranch is devoted to general farming, but, as a pioneer fruit grower in this part of the State, he has thirty-five acres in berries and fruit. Mr. Murphy was born in St. Louis, Mo., June 15, 1838. Reared during early boyhood in St. Louis, where he gained a common-school education, he was only a lad of 16 when he crossed the plains to California.

In 1854, joining a stock train owned by Lankershin, Wiles & McCoy, a company of St. Louis men, he drove an ox-team in that train. On several occasions they had trouble with the Indians and their experiences were of the true frontier variety. Six months and two days were consumed in the journey from St. Louis to Sacramento county. After spending several years in various pursuits, Mr. Murphy, in 1859, pre-empted 160 acres of government land where his present ranch is located, paying the regular price of \$1.25 per acre, and the patent to the land is signed by Abraham Lincoln. This land had not been hitherto touched in an agricultural way, and the transformation which has been effected in its appearance and productiveness is the result entirely of Mr. Murphy's labors and management. The raising of fine stock, such as Short-horn cattle, Percheron horses, poultry, Poland-China and Berkshire hogs, has for a number of years been an important feature of Mr. Murphy's establishments, of which he owned three in Sacramento county. He was among the first to embark in the business of growing fruit in this part of the State. He has been an exhibitor at the State Fair for the past 49 years and has

the honor of receiving many valuable prizes on his live stock as well as on displays of choice fruits. A widow and eight children survive him.

Perkins, Cal.

CORRESPONDENT.

GETTING RID OF FLEAS.

To the Editor: I note in the PACIFIC RURAL PRESS of March 15 an inquiry about getting rid of fleas, and thought it would not be amiss to give my experience. Two years ago the fleas got so thick around my barn and corrals that a person could not go around the barn without getting covered with fleas, and they were making life a burden for the hogs. I got me a barrel of crude oil and kept some handy where I fed the hogs, and two or three times a week I would pour a little of the crude oil on the hogs' heads and along their backs, about a gill on each hog. This would run down the sides of the hogs and kill all the fleas on them. The oil also remained on the hogs for several days, and all the fleas that jumped on the hogs from the ground would stick fast and never jump off again. In about three weeks the fleas all disappeared and the hogs looked fine and sleek from the use of the oil. Would like to hear of others' experience with the oil.

J. M. HAMPTON.

Live Oak, Cal.

[We would like to hear the experience of others also. Little ways of doing things like that told above are of the greatest value and are always most acceptable.—EDITOR.]

DEPRAVED APPETITE OF HORSE.

To the Editor: I have a colt about one year old, that continually delights in chewing up harness, ropes, chews on the manger, and in fact anything it can get a hold of.

I do not know exactly what the trouble is, although no doubt it is worms. I would be pleased to have you advise me whether or not this is, in your estimation correct, and if it is, advise me what can be used to rectify the same.—C. G. K., San Francisco.

ANSWER BY DR. E. J. CREELY.

This is a condition caused by something being lacking in the system, (lime salts, etc.). Give plenty of salt, good food, grain, etc.

Iron sulphate 2 ounces
Soda hyposulphate 4 ounces
Gentian root pulv. 2 ounces
Ginger 1 ounce

Mix and give teaspoon daily.

San Francisco Veterinary College.

A GREAT BREEDERS CONFERENCE.

To the Editor: You will be interested in knowing that the American Breeders' Association has decided to meet in San Francisco in 1915; the meeting will probably be held in May of that year. The work of the Association is divided into three sections, the Plant Section, Animal Section, and Eugenics Section. The Secretary of the Plant Section is Dr. A. J. Webber, Director of Research of the University of California, Riverside.

In connection with the meeting of the Association, it seems quite certain that some very interesting exhibits will be worked out, showing improvements in animal and plant breeding as well as the possibility of improvement of heredity in man. I feel sure that some outside exhibits of plant breeding will be arranged showing the methods and results of such workers as Burbank, Webber, Shull, Kellogg, Castle, and others.

The Association has appointed a committee to take active steps to secure, if possible, a meeting for San Francisco in 1915, of the International Genetics Congress.

J. A. BARR,

Manager Bureau of Conventions, Etc.

SHEEP BEST FLEA ERADICATOR

To the Editor: In your issue of March 15th, R. C., Corcoran, asks for advice as to the best way to get rid of fleas. If he can let a sheep run around his buildings where the fleas breed, he will soon find the fleas are getting less, and as new batches hatch out the sheep will soon get them picked up, and after a while the place will be entirely free of them. But the sheep must be allowed to run all around the sheds and breeding places, as the flea jumps up, gets into the wool, and can never get out again.

Redding.

E. W.

Miss Elderby—Do you really think that women propose?

Oldbach—If they don't there are many marriages I cannot account for.

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One 3-year-old Bull, Bonanza Lad, sired by the Great Gertie's Lad, one of the greatest sires on the Pacific Coast.

The young stock that will be sold have been recent importations from the best breeders of the East.

My great bull, POLO BLEAK HOUSE, is the best bred sire now living and is bred to a good many of the heifers that will be sold.

All stock fully guaranteed.

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Some extra good young boars for sale, ready for service. Best Eastern strains. Ed. E. Johnson, Turlock, Cal.

REGISTERED BERKSHIRE SWINE—Best Eastern strains; bred sows and spring pigs for sale. A. B. Humphrey, Mayhews, Sacramento Co., Cal.

REGISTERED DUROC JERSEYS—No better anywhere. Boars, sows and young stock for sale. Immediate delivery. Jno. F. Daggs, Modesto, Cal.

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GEO. V. BECKMAN, Lodi, San Joaquin Co., Cal. Registered Poland-China Hogs, both sexes.

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RANCHOS DOS RIOS, breeders of registered Jersey cattle. Oldest and largest herd in California; established 1868. A few young bulls from best cows in herd ready for delivery. Address R. E. Watson, R. No. 2, Modesto, Cal.

JOHN LYNCH, breeder of Registered Short-horns, milk strain. High class stock. First-class dairy breeding. Smooth cattle. Best pedigree. P. O. Box 321, Petaluma, Cal.

T. B. PURVINE offers for sale a few nice registered young Jersey bulls and bull calves out of fine cows. Petaluma, Cal. R. F. D. 4, Box 195.

GRADE SHORT-HORN DAIRY COWS FOR SALE, also a few registered Holstein bull calves. Apply A. Balfour, 350 California St., San Francisco.

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FOR SALE—Fine Holstein cattle and Berkshire boars; all subject to registry. Geo. C. Roeding, Fresno Cal.

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CONCRETE ROADS.

It will probably be a long time before it will be found profitable to pave many of our country roads with concrete. Occasionally, however, it may be found advisable to build concrete driveways around the country home or barn. The rather heavy first cost of so doing is offset by the advantages of such a surface, with its ease of upkeep, durability and cleanness, that the following suggestions regarding construction may be found useful.

The first consideration in the building of concrete roads is a careful study of local deposits of sand, gravel and rock (called the aggregate) to see whether they are suitable for concrete. Sand must be clean and hard, and must grade uniformly in size of grain from 1/4 inch down. The same applies to gravel and crushed rock, except that the largest particles commonly allowable are 1 1/4 inches in diameter. If local materials are usable, a considerable saving will be effected, as only cement will need to be freighted. A brand of portland cement should be chosen which is guaranteed to meet the specifications of the United States Government or those of the American Society for Testing Materials.

It is much faster and cheaper to mix the concrete with a machine than by hand. Depending on the grading of the aggregate, the concrete is usually proportioned 1 bag of portland cement to 2 cubic feet of sand and 4 cubic feet of screened gravel or crushed rock, or 1 of cement to 2 of sand and 3 of gravel or rock. During the grading and draining of the road, the aggregate is hauled and piled at convenient points. The concrete is mixed mushy wet, is deposited to the thickness of 6 inches upon the firm old road-bed and is brought to grade and shape by means of a templet. In order to shed the water to the side-drains the surface of the concrete is given a rise or crown in the center of one one-hundredth to one seventy-fifth the width of the roadway. The surface is finished with a wooden float and wire broom, by which means there is afforded a perfect footing for horses.

At intervals of 25 feet the road is divided into sections by narrow contraction joints extending crosswise the road and entirely through the concrete. These joints are formed by means of a thin metal or wooden cross-form or divider to which is tied a single or double thickness of tar paper with the paper face against the last-laid section of roadway. After the surface of this section is finished, and while the concrete for the adjoining section is being placed, the cord holding the paper to the cross-form is cut and the cross-form is removed. The tar paper adheres to the concrete and stays in the joint, which is reduced to the thickness of the paper by forcing

HORSES AND MULES.

REGISTERED PERCHERONS FOR SALE—Send for list to owner. All acclimated. Two gray stallions matured. State certificates of soundness. One 2-year-old black stallion. One white brood mare. Four black brood mares. Prices low owing to owner's illness. Send for list. M. E. Sherman, R. R. 6, Box 86, Fresno, Cal.

PURE-BRED REGISTERED PERCHERONS AND BELGIANS. A few choice young stallions from three to five years old, also two and three year old fillies for sale. Los Altos Stock Farm, Los Altos, Cal.

PERCHERONS—Pure-bred, registered, 2-year-old stallions for sale; or will exchange for draft horses or stock cattle. H. T. Lillencrantz, Aptos, Cal.

REGISTERED BLACK PERCHERON Stallion, Joaquin, No. 77186; three years old next April. Price reasonable. F. S. Israel, Linden, Cal.

BIG BONED BREEDING JACKS for sale. Jas. W. McCord, Hanford.

RUBY & BOWERS, Davis, Cal.—Registered draft stallions, all breeds.

Live Stock
From the East

My shipment of nine earloads of choice stock from New York, Wisconsin and Ohio arrived March 26 at Roseville Junction, where the cars were separated for shipment to breeders in different parts of the State.

Are now booking orders for next shipment.

HELP ME FILL A SPECIAL TRAIN WITH THE FINEST LIVE STOCK EVER BROUGHT TO THE COAST.

Am prepared to furnish Registered or Grade Dairy Cows, Beef Stock, Sheep, Swine or Draft Horses.

I make personal selection and guarantee special care en route and lowest freight rates in car on train-load shipments.

HEREFORD SPECIAL—30 young Registered Hereford cows in calf to champion bulls; from the greatest Hereford herd in America; have never been offered for sale before; they should come to California.

HOLSTEIN SPECIAL—200 choice young Holstein cows; will give from ten thousand to twelve thousand pounds of milk under Eastern conditions. I want to bring these cows to California. Do you want some of them?

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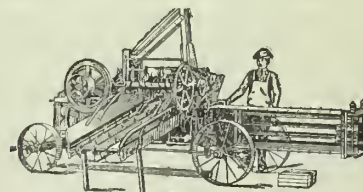
SAN FRANCISCO.

against it the freshly placed concrete of the section under construction.

When the surface of the concrete has hardened enough to prevent pitting, it is sprinkled with clean water and is kept moist for several days. Likewise, as soon as possible, the pavement is covered temporarily with 2 inches of sand or dirt from the side-road to give further aid in curing the concrete. Traffic is confined to the earthen side-roads until the concrete is about two weeks old. In the meantime shoulders of broken stone or gravel are built along both edges of the pavement. These are made 3 feet wide and sufficiently thick to be firm and to make it an easy matter at all times for wagon wheels to pass from the side-road onto the pavement.

THE FIRST COST AND THE REAL COST OF ROADWAYS.—There are two phases of the cost of any improvement—first cost and upkeep expense. In both items the concrete road has proven less expensive than any other kind of permanent roadway. Of some three million yards of city and country concrete pavements built in recent years, the average first cost has been \$1.22 per square yard. The annual upkeep expense per mile on these roads has been almost nothing. In Bellefontaine, Ohio, concrete pavements in use 18 years have cost annually for maintenance only 1/4 of 1 cent per square yard. Upkeep cost of Wayne county, Michigan, country concrete roads for three years has averaged but \$2.50 per mile. In 1911 the mean cost of repairing macadam roads in New York State was \$800 per mile—10% of the first cost. If these roads had been concrete, practically all this immense expense could have been saved and used in building new roads instead of repairing old ones. With better roads will come better schools, better churches, happier homes, better business, and decreased cost of living.

"Do you think," said the intellectual young woman, "that there is any truth in the theory that big creatures are bet-



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ter-natured than small ones?" "Yes," answered the young man, "I do. Look at the difference between the Jersey mosquito and the Jersey cow."

Elsie—After I wash my face I look in the mirror to see if it's clean. Don't you?

Bobby—Don't have to. I look at the towel.

Potatoes as Stock Food.

Recently we outlined some German practice in drying potatoes for stock. A reader asks for more details and asks this suggestive question: "If Germany can afford to build machines to dry potatoes for stock, what can we do with California sunshine in that line?"

The growing recognition of the value of dried potatoes for cattle-feeding purposes is reflected in the increase in the number of establishments in Germany in which the various potato products are prepared. At the end of the business year on July 31, 1910, there were 257 such establishments in that country, nearly all of them being operated in connection with large agricultural undertakings. The amount of raw material treated in the year 1909-10 was 332,642 tons and in 1910-11 it was 417,641 tons.

The use of dried potatoes as food for cattle arose from the impossibility of feeding raw potatoes without causing certain forms of sickness. It was equally impossible to boil large quantities without heavy investment for specially constructed boiling apparatus, and in any event raw potatoes can be preserved during a limited time only and are subject to deterioration toward spring, sometimes being a total loss. These several inconveniences are avoided by drying potatoes according to processes which apparently originated in 1902. By feeding swine and sheep with six different kinds of dried potatoes it has been proved that the food is digestible. The use of these potatoes proved that they were excellent for fattening swine, although not quite equal to barley groats.

According to tests made by the Board of German Agriculturists, it was demonstrated that the one-third of strengthening food generally given to horses in the form of grain could be replaced by dried potatoes, and such animals would be kept in excellent condition. In two out of four tests with horses it was shown that dried potatoes accelerated the shedding and regrowth of hair.

The following is a free translation of an extract from a report on the entire subject made to the experiment station at Rostock by F. Honcamp and B. Gschwendner:

The results of favorable tests caused the establishment of a great many potato-drying plants doing excellent work, the more so as a great number of technicians endeavored in the meantime to improve the method of manufacture. Two of the new systems claim special interest, but their products have not yet been tested as to digestibility.

One of these methods is Gumpel's invention. The inventor calls his products "press potatoes," or "papka." The other is the method invented by the manager of the Imperial Machine Works in Meissen. The machines constructed by this concern produce potato chips.

Potato flakes are obtained by mashing boiled potatoes by means of two rollers moving in opposite directions. The product is dried by allowing high-tension steam from the boiler to pass through the interior of the rollers. In the plants constructed according to the Knauer system direct fire gas is introduced and exhausts connected.

OPERATIONS ON THE IMPERIAL SYSTEM.—The Imperial plant consists of the drying apparatus itself with a feeder which can be regulated, the exhaust to remove the hot air, the fan to remove the dust, the heating furnace to supply the hot air, the machine for washing the potatoes, the machine for cutting them into chips, and the pneumatic transporting apparatus. The most important part is the drying machine, consisting of an

iron trough in which turns a perforated cylinder made of white metal with rows of small shovels attached.

After the potatoes have been washed and sliced, they are placed in the trough of the drying machine, being continually stirred and distributed equally along the entire length of the cylinder by the projecting shovels. A specially constructed apparatus in the upper part of the machine prevents the chips from adhering to each other and helps to distribute the mass equally and bring it into contact with the currents of hot air. The air is forced into the cylinder, passing out through the small perforations. It is said that the chief advantage of this system lies in the fact that a comparatively low temperature—225° to 250° C.—is entirely sufficient.

The "pressed potato" method is as follows: The greater part of the content of water is pressed out in a cold state, after the potatoes have been sliced. The mass is then placed in the drying machine. One advantage of this method is that, since comparatively little water is contained in the raw-potato mass, the costs are considerably less than those of manufacturing potato flakes or chips.

Statistics from experiments conducted by Kellner and Moeckern prove that potatoes are excellent fodder, with highly nutritive qualities, and are digested just as readily as any other of the best feeding materials. It is proved also that the process of drying the potatoes does not in any way impair their digestive properties, except perhaps the protein; but as there are but small quantities of protein in the dried potatoes the food value is not affected.

POTATOES FED RAW OR STEAMED TO FATTEN PIGS.

An experiment to test the feeding value of raw or steamed potatoes as supplementary feed with a grain ration, has been carried on by Robert Withycombe at the Eastern Oregon Experiment Station with interesting results which will be of special value this year on account of the superabundant potato crop.

The hogs in the experiment were divided into eight lots, and records of the different feed ration given each and the proportionate gain made were carefully kept. Each hog in lots 1 and 2 ate an average of 170.18 lbs. of barley and 509.53 lbs. of raw potatoes, making a gain in weight of 60.70 lbs. Those in lots 3 and 4 ate 110.30 lbs. barley and 663.75 lbs. steamed potatoes and made a gain of 70.60 lbs., while those in lots 5 and 6 ate 188.60 lbs. barley and 564.80 lbs. steamed potatoes and made a gain of 78.10 lbs. Lots 7 and 8 ate 300.10 lbs. barley without potatoes and made a gain of 69.5 lbs.

The last two lots, fed barley alone, were used as a check on the others to show more definitely the proportionate value of the potatoes. At the present market value of 7c. a pound live weight, the hogs fed barley made a \$4.87 gain, which makes the barley feeding value \$1.62 to the hundred.

Lots 1 and 2, fed barley and raw potatoes at the rate of 3 lbs. of potatoes to 1 lb. of barley, made a \$4.25 gain, which gives the raw potatoes a feeding value of 29c to the hundred.

Lots 3 and 4, receiving six times as much steamed potatoes as barley, made a \$4.94 gain, giving the steamed potatoes a feeding value of 47c to the hundred.

Lots 5 and 6, fed three times as much steamed potatoes as barley, made a \$5.47 gain, making the feeding value of the potatoes 42c to the hundred.

It is noticeable that those fed six times

as much potatoes as grain did not make quite the gain made by the others, but it required 85.25 lbs. less barley to make this gain, so the difference in feeding value is accounted for.

It is also noteworthy that the steamed potatoes are worth 13c more to the hundred than raw for feeding, as shown in the comparison of the gains of animals fed the 3 to 1 ration.

Registered Percheron Stallions For Sale

ONE GRAY FOUR-YEAR-OLD. State certificates of Soundness.
ONE BLACK TWO-YEAR-OLD.

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ALSO HOLSTEIN-FRIESIAN BULLS, from two years old to crating size.

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We have just received at our stables in Oakland a large importation of prize winning Percherons. These stallions comprise nearly all of the leading winners at the recent French shows, every animal at maturity weighing much over a ton, and they are strictly stallions of the well known McLaughlin type. We import more, sell more, and therefore can sell cheaper than anybody else.

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Shire Stallions and Mares

I have still on hand a few extra good draft stallions. They must all be sold this spring to make room for a new importation, and therefore I am offering them at very low prices.

WRITE OR CALL

HENRY WHEATLEY, Salvador Stock Farm
NAPA, CAL.

A. C. RUBY, Portland, Ore.

C. W. BOWERS, Sacramento.

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THE LARGEST HORSE IMPORTERS ON THE PACIFIC COAST



PERCHERON, BELGIAN, ENGLISH SHIRE, CLYDESDALE, HACKNEYS AND COACH STALLIONS AND MARES.

We sell more imported horses than all other firms on the Coast because we are direct importers and give a four-year guarantee which is good right at home. We have on hand at all times the largest and best lot of heavy draft stallions and mares, both American bred and imported, to be found any place in the West. If you are in the market for a high-class stallion or mare, don't fail to give us a call, as we can sell you more genuine horse for the money than any other importer in the business.

Address:

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We Have Imported More Horses Than Any Other Firm in the United States During the Last Year.

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Neutralizers in Cream and Milk.

Consul General A. M. Thackara, Berlin, writes that a cream shippers' association in the Northwest makes inquiry relative to the use in Germany of lime or other neutralizer to overcome excessive acidity in cream. A representative of this office has interviewed the general director of the Sales Association of North German Dairies on the subject. The substance of the interview follows:

The use of lime or other neutralizer, except certain salts, in any article intended for direct human consumption is prohibited. There would appear, however, to be no objection to its use in cream from which butter is to be made. In the process of butter-making the lime would be dissolved and washed off by the water. It would not mix with the fatty substances.

Opinion differs as to the harmfulness of lime and other neutralizers in cream intended for direct consumption, but, in view of the prohibition, the question is not pressed, especially as the addition of 1 to 2% of chloride of potassium (one of the salts which may be used) is considered sufficient to preserve sweet cream. Carrying out the idea of the non-use of neutralizers in food stuffs for direct consumption, the law prohibits the addition of anything but salt to butter; the use of boron, for instance, said to be permitted in England and the United States, being considered adulteration. To milk not intended for direct consumption, but for the manufacture of butter, a small amount, about 1 to 20,000, of nitrate of potash is added to remove the taste of beets, a common cattle feed in Germany.

There is considerable discussion at present as to the need of new legislation on this subject. The Imperial Health Office (Kaiserliches Gesundheitsamt) has published so-called "Entwürfe zu Festsetzungen über Lebensmittel," or suggestions as to the legislation needed relating to butter, honey, and vinegar. Others may follow. The three now out may be purchased from the Verlag Julius Springer, Linkstr. 23, Berlin W., at the following prices, which include postage to the United States: On butter, 2.30 marks (55c); on honey, 90 pfennigs (22c); and on vinegar, 1.30 marks (31c).

CENTRAL WEST WILD OVER ALFALFA.

Campaign work with automobiles to begin early in April and extend into the late fall. County and city superintendents of schools, colleges, institute workers, Chautauqua lecturers, and others interested in the work will be assisted in obtaining alfalfa charts and lantern slides. Alfalfa literature and booklets will be given wide distribution throughout the country. Special alfalfa articles will be sent to farm journals and magazines, and plate and matrix pages to newspapers. Alfalfa editions of newspapers will be published where campaigns are conducted. Dates will be arranged for "Alfalfa Day" in the schools. The campaign will be conducted in co-operation with farmers, bankers, business men, commercial clubs, granges, live stock and dairy associations, in any community where the people are anxious to improve their conditions agriculturally and are willing to give their time and money for an enthusiastic campaign.

Work to be started immediately in the Corn and Cotton Belt States and in the East. Thirty to forty meetings will be held in each county, the number depending on local conditions.

To accomplish the most in agricultural development, we must begin with the man behind the crop. Upon him depends the final working out of the principles of

agriculture—the simple and practical things—which our schools, colleges, and experiment stations are endeavoring to bring into general use.

Professor Holden, of the International Harvester Co., proposes to carry these principles further even than the very effective work done on the agricultural trains, by using that most modern vehicle—the automobile—going directly to the people on their farms where the meetings are to be held.

Agricultural development needs, in addition to the work of our public institutions, the individual effort of every merchant, banker, corporation, or laboring man, and this plan calls for their heartiest co-operation.

This plan for increasing the yields of our crops by the more extensive growing of that wonderful soil improver, alfalfa, is meeting the approval of all men who have any knowledge of the beneficial results of its introduction as a general crop.

Campaigns are now being organized in five different States, and Professor Holden is daily answering requests for his assistance in organizing other localities, and invites cordial co-operation with every community interested.

SWINE RAISERS TO ORGANIZE AT UNIVERSITY FARM APRIL 17.

To the Editor: At the request of a number of breeders, the department of animal husbandry has arranged for a meeting of California swine raisers. The meeting is to be held at the University Farm, Davis, on April 17th. Persons attending the meeting will be met at the trains by students from the farm school and shown through the various departments. At 11 o'clock a meeting will be held to discuss plans of organization.

At 1 o'clock the second session will be held. Addresses will be delivered by Professor H. E. Van Norman, vice-director of the Experiment Station and dean of the University Farm School, and by D. O. Lively, superintendent of the live stock division of the Panama-Pacific Exposition.

Dr. F. M. Hayes will explain the work of the State's cholera serum plant at Berkeley. Professor J. I. Thompson will give a report on the marketing of two lots of experimental hogs recently shipped to San Francisco from the University Farm. At this session the arrangements for organization and plans for lines of work to be undertaken will be completed.

Every person who raises hogs can afford to attend this meeting and will be welcomed. There will be an experience meeting relating to the success or failure in saving pigs from litters farrowed this year.

F. R. MARSHALL,

Professor Animal Husbandry.

Davis.

FEEDING CUT ALFALFA HAY.

To the Editor: Regarding cut alfalfa hay, cut say from one-half to three inches in length, would it be better than whole hay for hogs, cattle and horses, and if it is better, should it be fed wet or dry? —B. E., San Francisco.

ANSWER BY L. P. DENNY, HANFORD.

Replying to this inquiry, I will say that cattle and horses do much better when fed chopped alfalfa hay than when fed whole hay. They can eat the required amount in much less time and with less exertion. For cattle and horses the hay should be cut about one inch long and fed dry. There is no advantage in chopping alfalfa hay for hogs unless it is mixed with ground grain and made into slop.

Is Oleomargarine As Good As Butter?

Because oleomargarine is colored like butter and looks like butter and even tastes like butter, is it as good as butter?

The makers CLAIM it is.

You KNOW it is not.

Now similar conditions prevail in the separator business.

The DE LAVAL is everywhere recognized by creamerymen, prominent dairymen and buttermakers as being by far the best cream separator on the market.

98% of the world's creamerymen use the DE LAVAL separators exclusively. That looks like pretty conclusive evidence that the men who make A BUSINESS of the separation of cream and the making of butter, the men who know, are not in any doubt as to which is the best cream separator.

The makers of inferior separators acknowledge that the DE LAVAL is best when they say to you "Our separator looks like the DE LAVAL" or "it's just as good as the DE LAVAL, but we will sell it to you for a little less money."

Why do they offer to sell their machines cheaper? For the very same reason that the makers of oleomargarine sell their product cheaper than butter—because they COST less to MAKE and are WORTH less to use.

The DE LAVAL has many imitators but no equal.

There is no substitute for the DE LAVAL any more than there can be a substitute for butter.

If you need a cream separator, why experiment with "near" or "just as good" imitations or substitutes? You will save yourself time, money and trouble by getting the genuine DE LAVAL and taking no chances with anything else.

For catalog and any desired information write to the nearest office of THE DE LAVAL DAIRY SUPPLY CO., 101 Drumm Street, San Francisco; 1016 Western Avenue, Seattle; 165 Broadway, New York.

WORLD'S RECORD HOLSTEINS



Aralia De Kol.

Aralia De Kol, one year.....28,065.9 lbs. milk
Sadie De Kol Burke, six months.18,285.8 lbs. milk

Place at the head of your herd a bull strong in the blood of these cows.

We invite you to inspect our herd and will cheerfully give you further information and prices.

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Cutter's Anthrax and Blackleg Vaccines

are given the preference by 80 per cent of California stockmen because they give better results, than others do.

Write for Prices, Testimonials and our New Booklet on Anthrax and Blackleg.

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BERKSHIRES

Our herd is now one of the best in the State, being rich in Silvertip, Black Robinhood, Longfellow, Empress and Masterpiece Strains.

Prices reasonable, satisfaction sure. Correspondence solicited from interested parties.

OAK GROVE DAIRY FARM,
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SHROPSHIRE

Pure Bred and Registered

For 1912:

140 Head Yearling Rams
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A-1 Grade Second-Hand

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Best Quality. Fully Guaranteed. Get our prices before buying. They will interest you.

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More Facts About Heavy Laying Qualities.

[Written for the PACIFIC RURAL PRESS by
SUSAN SWAYSGOOD.]

Last week was taken up with talking about feeding for heavy layers; some people imagine that heavy laying birds are just freaks, others think they are just the product sifted out through trap nests, but I still maintain that heavy laying hens are the result of a combination of causes, all of which are gained from intelligent observation and great care. There is not a doubt but that hens are just as susceptible to care and proper methods of improvement as other kinds of livestock. The old long-horned scrub cows of years ago were doing great if they raised a calf, but now we have cows that give enough milk and butter fat to raise three calves.

In all breeds or varieties of fowl there are some specimens that are inclined to make more flesh than others; these should be sold for table purposes and eggs from the egg laying type only should be hatched. This method of selection is altogether independent of trap nesting, which is useful in a way. Its purpose is to tell you which hens lay and which do not, but it is no guarantee that the pullets raised from those eggs will be as good layers as their mothers.

For my part, I would rather take a cockerel from a heavy laying hen and breed him to pullets from just average layers. The reason I would do this is that a female strong enough in potent power and vitality to keep up a good record in laying will transmit her qualities to the male line in greater proportions than to the females. The male, in his turn, transmits his qualities to the female line. It is a strange thing that farmers are always willing to admit the potency of the male when breeding cattle and horses and yet think it all nonsense when applied to poultry. But it is

S. C. WHITE LEGHORN BABY CHICKS,
\$9.00 per 100, \$85.00 per 1000.

S. C. WHITE LEGHORN HATCH-EGGS,
\$1.00 per 15, \$5.00 per 100.

My stock is thoroughbred and carefully selected for Standard and laying qualities.

J. R. HEINRICH POULTRY YARDS,
Arroyo Grande, Cal.,
San Luis Obispo County.

BARRED and BUFF PLYMOUTH ROCKS.

A few choice cockerels and pullets left.
Eggs for hatching after January 1st.

JAS. M. MONTGOMERY,
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THE THOMAS HATCHERY Petaluma FOR CHICKS

Which are Cheaper and Better than all the rest, because we have Better Stock and Better Equipment and because we do give you Better Service.

Write for price list and pamphlet, mailed upon request, without cost.

Single Comb White Leghorns a specialty.
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Free Book

giving a full account of hatching, raising, and caring for chickens,

with details of a Complete System of Feeding.

Will be sent to you on application

COULSON CO.
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a poor rule that won't work more ways than one, and why poultry should be considered any different than other animals I can't understand.

Now every farmer that has raised cattle may know a good milch cow as soon as he gets a good glance at her. Just as a form he will run his hands along the milk veins and examine the udder, but he may practically know all he needs to know without going through the latter performance.

How does he know? He knows from observing and impressing the type of a good milker on his mind, then when he sees the type, no matter what color the cow is, he knows it. There is just as much distinction between a beefy hen and a laying type hen as between the beef cow and the milker. But as hens are smaller and costs less there has been very little attention paid to type. Yet we are coming to know that one of the biggest leaks in the poultry business is feeding a lot of drones. The drones in the hive eat up the honey made by the workers in a short time.

AIDS IN SELECTION.—Trap nests can be made to serve more than one purpose if a little time is taken in the use of them. Every time a hen is released she should be recorded on a sheet prepared with the band numbers of the hens in that yard. Then when a hen has made a good record compare her with a poor layer; note the shape of the head, depth of body and bright eye, besides the general alertness of the hen. A great deal can be learned from the simplest means if we only take the trouble. If comparisons are made for a week or more and differences noted it will soon become a habit to pick out a good layer because the type will be impressed on the mind.

Another way to judge is by the appetite, as a good layer is always a hearty eater and she dives right into it, while the lazy non-laying hen will pick around and eat very little. Always select good eaters when choosing laying hens.

Mr. Quisenberry, director of the Missouri egg laying contest, says, "Selection should be emphasized and spelled with capital letters; it should begin with the eggs, the next selection when the chick is hatched. The weak, runty, crippled chick should never be allowed to live. If you don't care to kill them, mark them so that they may be used for the table or other purposes, but never for reproduction." And in this he is right, a weakly chicken will never have the vitality a good layer and breeder should possess.

The egg laying contest now going on at Mountain Grove shows what can be done in the way of improvement by selection. The report says, "The hens and pullets in the National Egg Laying Contest more than doubled the record made by the hens in the same month for the previous year. The yield for January one year ago was 3,203 eggs, and the yield for January this year was 7,016 eggs. We attribute this to the fact that we have more pullets this year and the winter has not been quite so severe as last, and our pens most all appear to be of better quality."

The quality is the greatest factor in the increase of eggs, in my opinion. There is one Canadian Black Orpington pullet that laid every day in January, 31 eggs in 31 days. There is also a pen of English White Leghorns that laid 213 eggs in the month. My idea is that those who have sent pens this year have taken a great deal more care in making the selection than was taken last year.

People are very prone to think that any old thing will go until they get beat, then they change their minds and take more pains.

As confirmation of what I have told you so many times about the male bird influencing the laying qualities of the flock, here is what Mr. Quisenberry says

For Egg Profits you should use

HIGH PROTEIN

Meat Meal Bone Meal
Blood Meal Oyster Shell
Mixed Meat and Bone
Ground Bone

Ask our dealer, or
write us, sending
his name.

PREMIER POULTRY FOODS "Good as the best
Cheaper than the rest."

Ask us
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POULTRY FOUNT

It saves expense and
prevents disease.

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Hopland Stock Farm

Poultry Department, Hopland, Cal.

WHITE LEGHORNS

Selected and mated to imported stock cockerels.

BABY CHICKS at \$12 per hundred.

EGGS \$6 per hundred in lots of less than 1000 eggs. Orders in excess of this, 10c per dozen above highest market price one week before shipment. 75 per cent fertility guaranteed.

8000 hens yarded—sanitary conditions perfect.

Well raised—well culled—eggs will produce layers.

PENS—TRIOS—SINGLE BIRDS OF ALL BREEDS.

BUFF ORPINGTONS—WHITE WYANDOTTES—RHODE ISLAND REDS AND BARRED PLYMOUTH ROCKS.

EGGS at \$6 per hundred and \$15 per hundred for BABY CHICKS.

S. C. W. Leghorn Pullets in full laying from \$7.50 to \$15 per dozen.

Eggs and stock from prize winners a matter of correspondence.

UTILITY STOCK

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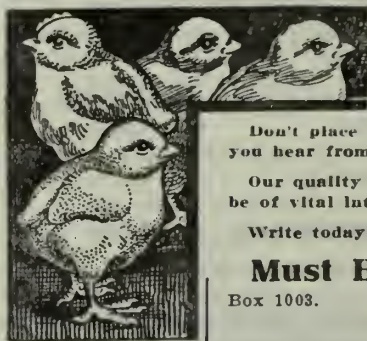
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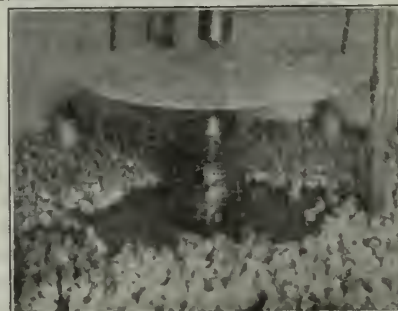
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Night Scene Showing 1000 Chicks. 10 Days
Old about an Arenberg Patent Stove.

This picture is from an actual photograph, and the stove is the original and only perfect oil stove made. This stove has REVOLUTIONIZED the rearing of BABY CHICKS. It is

Arenberg's Patent Brooder Stove

and has proven to be the most successful brooding and heating stove on the market. Awarded Gold Medal for most meritorious California invention at California State Fair. Perfectly safe, simple, easy to manage. Burns Stove Distillate, Engine Distillate, Coal Oil, and, in an emergency, can burn Wood or Coal. For full particulars write

H. F. ARENBERG, Petaluma, Cal.

Live Agents wanted in every state and county in the United States.

POULTRY.

MAMMOTH BRONZE TURKEY EGGS—From the largest and best pure-bred flock in the world. All turkeys carefully selected, and combine the greatest prize-winners and the best blood of the East and Middle West. They have large bone, long deep bodies, full breasts, brilliant plumage and are healthy. No inbreeding. Write for further information. Geo. A. Smith, Corcoran, Cal.

OUR GOLDEN ANTLERS AND SILVER CAMPINES took several first prizes both for the fowls and the best white eggs at San Jose, November, 1912. From Jan. 1st to Oct. 31st, 23 hens laid 4148 eggs, and are still laying. Crystal White Orpington and Antler pullets for sale. S. & B. G. HAIGH, Route 2, Box 4C, San Jose, Cal.

BUFF LEGHORNS—Booking orders for spring delivery of day-old baby chicks from two-year-old breeding stock; also eggs for hatching by setting or 100; 6000 egg incubator capacity. Indian Runner duck eggs for sale. Baby ducks hatched to order. R. M. Hempel, R. F. D. 1, Lathrop, Cal.

THE MANOR FARM RHODE ISLAND REDS have won more prizes, cups and specials during this season at the big important shows than all their competitors. They have the typical shape and rich red color. Eggs, chicks and breeding stock all the year round. Exhibition or utility and satisfaction guaranteed. The Manor Farm, Petaluma, Cal.

THE MANOR FARM HATCHING EGGS—Day old chicks and stock from best quality. S. C. White Leghorns, S. C. Black Minorcas, Barred Rocks and Orpingtons. Send for illustrated price list—it's free. The Manor Farm, Petaluma, Cal.

WESTERN HATCHERY—Fred Dye, Proprietor, successor to Dye & Fredericks. Now booking orders for day-old chicks, from heavy-laying strain White Leghorns. Prices on application. Box 2, Petaluma, Cal.

PIGEON BARGAINS—Fine young Homers, \$1.00 mated pair. Large Runt crosses, \$2.00 mated pair. Thoroughbred Carneau, \$3.00 mated pair. Discount for quantities. Sunny Slope Squab Farm, Healdsburg, Cal.

SCHELLVILLE HATCHERY—Thoroughbred White Leghorn chicks shipped on approval; examine at your home before remitting; no weak ones charged for. Rural Box No. 72, Sonoma, Cal.

MAMMOTH IMPERIAL PEKIN or Indian Runner Duck eggs, \$1 per setting of 13. Toulouse Geese, \$1 per 5. Pearl Guinea, \$1 per 15. Bronze Turkey, \$1.50 per 11. F. Sewell Brown, Newark, Cal.

CROLEY'S POULTRY CONDITION POWDER—A tonic for Poultry. 25-lb. Galvanized Pails, \$2.00. 5½-lb. can, 50c. 2½-lb. can, 25c.

WHITE ORPINGTONS—100 early hatched cockerels and pullets from prize-winners. Sales subject to approval on delivery. Eggs \$5 to \$15 per 15. Jeanne A. Jackson, Oroville, Cal.

BABY CHICKS—Eggs for hatching. Buff Minorcas, White Orpingtons, White Plymouth Rocks, White Leghorns, thoroughbred Hoganized stock. Mrs. C. A. Sanford, Mountain View, Cal.

\$3.00 PER HUNDRED—Standard Thoroughbred White Leghorn eggs for hatching. Hatchable eggs from healthy hens. Heavy winter-laying stock. Andrew Emery, Kenwood, Cal.

BROWN LEGHORN ROOSTERS, chix and eggs, same in Barred Rocks, White Minorcas. W. S. Rose, Yuba City, Cal.

ORPINGTONS—Buff and White. Trios, \$10 up. Eggs, \$3 to \$5 a setting. Chicks, 30 cents each, incubator lots. Mrs. S. Swaysgood, R. 2, Pomona, Cal.

S. C. WHITE LEGHORNS—Heavy layers, California's greatest prize winning strain. Eggs, chicks, stock. Send for list. M. Dutterbernd, Petaluma.

CHICKS—White Leghorn, White Rock; high-class stock. Send for booklet of prices. Mahajo Farm, P. O. Box 597, Sacramento, Cal.

FOR SELECTED EGGS AND CHICKS from S. C. White Leghorns, see Hopland Stock Farm advertisement.

BABY CHICKS, from heavy layers. White Leghorns, Barred Rocks, R. I. Reds. Free folder. White Hatchery, Petaluma.

BUFF ORPINGTON AND COLUMBIAN WYANDOTTE; eggs and stock. Mrs. Leona Brophy, 1415 N. St., Fresno.

BARRED ROCKS ONLY—Now is the time to order your eggs and hatched chicks. Send for price list. G. L. Hawley, Madera, Cal.

BARRED PLYMOUTH ROCKS, White Minorcas, White Holland turkeys. Stock and eggs only. L. N. Cobbledick, Oakland.

HICKENS, DUCKS, GEESE, GUINEAS, Pea fowl. Address Wm. A. French, 545 W. Park St., Stockton, Cal.

RAPNESTED S. C. WHITE LEGHORNS. Eggs, chicks, stock. A. R. Schroeder, Box P, San Gregorio, Cal.

WHITE LEGHORNS—Chicks, eggs, cockerels. Fine stock. Reasonable. O. B. Morris, Lodi, Cal.

on the subject, "In building up a laying strain, endeavor to get your males from a known strain of high producers. More depends upon the breeding of the male than upon the female. One of the main things to look for in your females is vitality. A hen can never stand the strain of laying a large number of eggs unless she is strong and vigorous."

HEAVENLY CHICKENS.—Now independent of trap nests, of selection and of using the Hogan system, I always hatch my chicks so that they come out in what are called fruitful signs of the Zodiac. Any almanac will tell you that there are twelve signs, but it does not tell which are barren and which are fruitful. This is my hobby. Of course I get ridiculed sometimes, but that does not matter, the world laughed Gallileo to scorn and finally burned him at the stake; so surely a little ridicule is not going to hurt anybody as long as the fire does not get started. If the moon can influence the tides, as anybody knows, why can it not have the same influence on the earth, on animals and on vegetation? The word "lunatic" implies that the moon "Luna" affects people, and in all ages there have been people that have used the science of astrology in agriculture, horticulture and in many other pursuits. Then why not in poultry culture? At any rate we are not making riches so fast that we can afford to neglect any means that promises to help us breed up strong, profitable poultry.

[The Zodiac certainly has just as much to do with chickens as with other agricultural things.—EDITOR.]

WHAT ONE SHOULD EXPECT.—A hen that lays one egg a day should not be considered anything out of common, any more than a cow that gives a pail of milk a day. We expect a cow that is a good milker to fill the pail twice a day, and it is only a question of time until we shall expect at least one egg a day from any ordinarily good laying hen. We might have reached the egg-a-day hen long ago but for the reason that we let such a little satisfy us. We are slaves to the past, and because so little was expected from the old mongrel stock, it's hard to expect any better now. Don't mistake my meaning, because if you do the egg-a-day hen will be a long time in materializing. Expectation is only the hand-maiden to working for a result, alone, it is a mighty poor tool. Cromwell hit is right when he advised his soldiers "to trust in God and keep their powder dry." The poultry man's slogan should be, "Trust in the egg-a-day hen, and use every possible means to breed and raise her." Get out of the rut, and try any reasonable means to attain the ideal; that's the only way to get any thing.

QUESTIONS AND ANSWERS.—Kindly answer the following in the next issue: Some of my White Leghorn hens lose flesh, droop around and in three or four weeks die. In opening I find them infested with worms two or three inches long, resembling a heavy thread. What is the cause, and what can I do for it?—SUBSCRIBER.

ANSWER.—Raw meat or milk are both breeders of worms in poultry. If the fowls have had range they have probably picked up some animal food that have caused the worms, in the first place, and these increase very rapidly. There are two varieties of worm, the round worm, which is the one resembling a heavy thread, and the tape worm. Dissolve in warm water two grains of santonine for each bird

to be treated, mix a small amount of mash with this water and add half a teaspoonful of castor oil for each bird. Mix as dry and crumbly as possible and feed to the birds. Keep all droppings cleaned up, or as the worms are expelled the fowls may eat them again. Another very

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WHAT ONE SHOULD EXPECT.—A hen that lays one egg a day should not be considered anything out of common, any more than a cow that gives a pail of milk a day. We expect a cow that is a good milker to fill the pail twice a day, and it is only a question of time until we shall expect at least one egg a day from any ordinarily good laying hen. We might have reached the egg-a-day hen long ago but for the reason that we let such a little satisfy us. We are slaves to the past, and because so little was expected from the old mongrel stock, it's hard to expect any better now. Don't mistake my meaning, because if you do the egg-a-day hen will be a long time in materializing. Expectation is only the hand-maiden to working for a result, alone, it is a mighty poor tool. Cromwell hit is right when he advised his soldiers "to trust in God and keep their powder dry." The poultry man's slogan should be, "Trust in the egg-a-day hen, and use every possible means to breed and raise her." Get out of the rut, and try any reasonable means to attain the ideal; that's the only way to get any thing.

QUESTIONS AND ANSWERS.—Kindly answer the following in the next issue: Some of my White Leghorn hens lose flesh, droop around and in three or four weeks die. In opening I find them infested with worms two or three inches long, resembling a heavy thread. What is the cause, and what can I do for it?—SUBSCRIBER.

ANSWER.—Raw meat or milk are both breeders of worms in poultry. If the fowls have had range they have probably picked up some animal food that have caused the worms, in the first place, and these increase very rapidly. There are two varieties of worm, the round worm, which is the one resembling a heavy thread, and the tape worm. Dissolve in warm water two grains of santonine for each bird

good remedy is to beat an egg up, adding a tablespoonful of turpentine, mix by agitation and give a teaspoonful of the mixture night and morning. This remedy involves more labor and the handling of each bird separately, while the other can be fed to all at one time.

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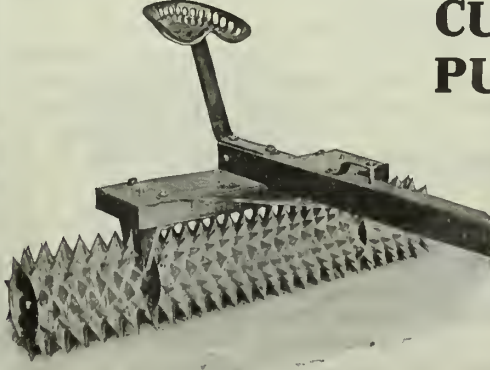
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Agricultural Directory.

At intervals hereafter there will be given a directory of all agricultural organizations of more than local interest in California. The list printed below is probably subject to a great many corrections, which will be greatly appreciated.

On account of the innumerable organizations of only local scope, these have had to be omitted, but any reader who wishes to get in touch with such an organization can either do so by communicating with some central concern with which it is affiliated or perhaps the PACIFIC RURAL PRESS can provide information on request. There are, for instance, many local associations affiliated with State-wide associations or exchanges, like the California Fruit Growers Exchange, the Walnut, Almond, Fruit Exchanges, the State Dairy and Beekeepers Associations, etc.

Organizations of no more than county interests generally have to be omitted. In several instances, however, county organizations have been included on account of some special influence exerted on the industry with which they have to do outside of the county. If any organizations should be included and are not, it would be a great favor if any subscriber who is a member would write in, giving the name of the same and the name and office of the person to whom communications should be addressed.

EXHIBITIONS.—We would also especially request that all organizations who give annual exhibitions patronized by others than the town or county in which they are located, would send their names in. This applies to Poultry organizations. It does not matter how local the organization is in membership, provided it gives a show patronized from other parts of the State, as this gives the local organization a general interest. Also any organization, social, promotive, or commercial, that takes in a whole district, larger than a county, is entitled to be in this directory. And, repeating, we will print this from time to time in corrected form and want this directory as full and correct as possible.

1. STATE ORGANIZATIONS AND OFFICIALS.

College of Agriculture, Thos. F. Hunt, Dean, Berkeley.
Agricultural Experiment Station, Thos. F. Hunt, Director, Berkeley.
University Farm and School of Agriculture, H. E. Van Norman, Dean, Davis.
California Polytechnic School, L. B. Smith, Director, San Luis Obispo.
State Agricultural Society, J. L. McCarthy, Secretary, Sacramento.
State Commission of Agriculture, A. J. Cook, Commissioner, Sacramento.
Quarantine Division, Frederick Maskew, Chief Deputy, Ferry Building, San Francisco.
State Dairy Bureau, F. W. Andreasen, Secretary, Hansford Block, San Francisco.
State Veterinarian, Dr. Chas. Keane, Sacramento.
Stallion Registration Board, J. L. McCarthy, Secretary, Sacramento.
State Fertilizer Control, John S. Burd, Berkeley.
State Forester, G. M. Homans, Sacramento.
State Board of Health, Dr. W. F. Snow, Secretary, Sacramento.
Veterinary Medical Board, Dr. Otis A. Longley, Secretary, Fresno.
Fish and Game Commission, Mills Building, San Francisco.

2. FEDERAL ORGANIZATIONS AND OFFICIALS.

Bureau of Animal Industry, Dr. L. E. Hicks, Postoffice Building, San Francisco.

Bureau of Animal Industry (Dairy Division), Warren B. Thurston, Postoffice Building, San Francisco.
Bureau of Chemistry, Food and Drug Inspection Laboratory, H. M. Loomis, Appraisers Building, San Francisco.
Irrigation Investigations, Frank Adams, Berkeley.
Weather Bureau Service, Alexander C. McAdie, Merchants Exchange Building, San Francisco.
Forest Service, Coert Du Bois, District Forester, First National Bank Building, San Francisco.
Crop Reporter, J. E. Rickards, Customs Building, San Francisco.
Geological Survey, Water Resources, H. B. McGlashen, New Customs Building, San Francisco.
Plant Introduction Garden, R. L. Beagles, Superintendent, Chico.

3. ORGANIZATIONS, LOCAL.

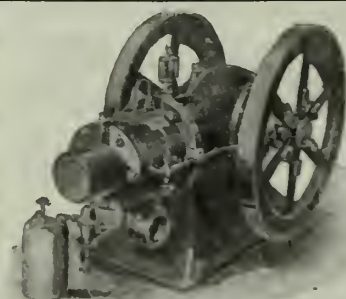
San Joaquin Water Problems Association, John Fairweather, President, Fresno.
Sacramento Valley Development Association, O. H. Miller, Secretary, Sacramento.
North of Bay Counties Association, Ella B. Fischer, Secretary, Petaluma.
Monterey Bay Counties League, Geo. Gould, Secretary, Monterey.
San Joaquin County Grape Growers Protective League, Lodi.
Delta Association of California, Col. John P. Irish, Secretary, Oakland.
Watsonville Apple Annual Association, C. Gentry Redman, Secretary, Watsonville.
Humboldt County Apple Growers Association, Geo. B. Weatherby, Secretary, Eureka.
Imperial Valley Melon Growers Association, El Centro.
Orange County Dried Fruit Association, Harry Lee, Secretary, Santa Ana.
Ventura County Dried Fruit Association, C. L. Uhl, Secretary, Vacaville.
Orange County Celery Association, A. Johnson, Secretary, Smeltzer.
Imperial Valley Cotton Growers' Exchange, C. W. Barton, Secretary, El Centro.
San Mateo County Poultry Association, Arthur P. Schroeder, Secretary, San Gregorio. Show at San Mateo, December 4 to 7.

4. COMMERCIAL ORGANIZATIONS. (State Wide.)

California Fruit Growers Exchange, G. Harold Powell, Manager, Los Angeles.
Citrus Protective League, F. O. Wall-schlaeger, Secretary, Los Angeles.
Deciduous Protective League, J. W. Jeffrey, Secretary, Sacramento.
California Fruit Distributors, Charles E. Virden, Manager, Sacramento.
California Walnut Growers Exchange, Fred Hazzard, Manager, Los Angeles.
California Almond Growers Exchange, T. C. Tucker, Manager, Sacramento.
California Farmers Union, Inc., F. G. Johnson, Manager, Fresno.
California Cured Fruit Exchange, J. P. Dargitz, Manager, Sacramento.
California Associated Raisin Co., James Madison, Manager, Fresno.
California Raisin Exchange, W. R. Nutting, Manager, Fresno.
California Fruit Exchange, J. L. Nagle, Manager, Sacramento.
Lima Bean Growers Association, Chas. Donlon, President, Oxnard.
California Rochdale Co., 112 Market St., San Francisco.
Consolidated Honey Producers of California, A. B. Shaffner, Los Angeles.
Southern California Poultrymen's Co-operative Association, Jos. Davis, Secretary, Los Angeles.

3. ORGANIZATIONS, GENERAL.

California Development Board, Robert Newton Lynch, Manager, Ferry Building, San Francisco.
California State Grange, Patrons of Husbandry, E. T. Pettit, Master, Cupertino.
Farmers Educational and Co-operative Union, Fred Millard, Secretary, Los Gatos.
California Association of Nurserymen, H. W. Kruckeberg, Secretary, 237 Franklin Street, Los Angeles.
California State Floral Society, Mrs. Henry P. Tricou, Secretary, 882 Grove Street, San Francisco.
Association of County Horticultural Commission, Wm. Garden, Secty., Stockton.
California Livestock Breeders Association, F. J. Sinclair, Secretary, 628 Montgomery Street, San Francisco.
California State Dairy Association, S. A. W. Carver, Secretary, Los Angeles.
California Woolgrowers Association, Fred A. Ellenwood, Secretary, Red Bluff.
California Creamery Operators Association, F. H. Daniels, Secretary, 1223 Park Street, Alameda.
California Creamery Managers Association, H. P. Glasier, Secretary, 3240 Webster Street, Oakland.
California State Veterinary Medical Association, Dr. J. H. Hogarty, President, 1734 Webster Street, Oakland.
California Holstein Breeders Association, James W. McAllister, Secretary, Chino.
California Jersey Breeders Association, J. E. Thorp, Secretary, R. 6, Stockton.
State Beekeepers Association, A. B. Shaffner, Secretary 4235 W. 1st Street, Los Angeles.
Dried Fruit Association of California (dealers), H. P. Dimond, Secretary, San Francisco.
Sierra Club, Wm. E. Colby, Secretary, 2901 Channing Way, Berkeley.



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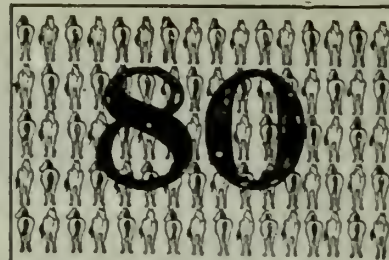
PATENTS

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The Ranchwoman's Flower Garden.

Many magazines nowadays are full of helpful hints to the woman with a flower garden, who has water, money and time at her command. Few if any of these hints are of any value to the California ranchwoman, who more often than not has little water, less money and no time.

It stands to reason that the Western ranchwoman must have "hints" all of her own, and that most particularly she must have a garden that will stand neglect. Like myself, most women love tender annual things, and begin by making the mistake of trying to carry along a garden hospital that is a sorrow to the eye. One back-aching experience of this sort should be enough for every sensible woman. We must have flower gardens to be happy, we women, but let us have rational ones. It takes a little thought

house, as shown in drawing No. 2, and taper down to the front walk and gate.

In the front of the house at the farther end of the porch will be started another graduated mass of shrubs and flowers. All tender annuals and perennials will be taken out and the hardy drought-resisting perennials—sweet williams, marigolds, penstemon, snapdragons, and all the long list of lovely old-fashioned flowers that gladden the eyes and nose—will take their place. There will be of necessity bare spaces in this perennial garden, which a woman can fill with hardy annuals. And by all means fill the bare spaces. Cover every inch of your ground, despite the shudders of the florists and nurserymen. You are not going in for exhibition plants. What you want is a mass of cheery color—a jungle garden if you will. And bear



Finding the Summits In Your Landscape Garden.



Building Toward the Summits by Proper Planting.

to have that sort of a garden, but it pays. In the first place, go outdoors and look at your garden with the critical eye of a stranger. Frankly, how does it strike you? Are there a few cobwebby lilacs near the gate, some dusty rose bushes in the open bed, a line of sunburnt sickly sweet peas straggling up some meager strings attached to the side wall of your house, and a down-trodden mess of violets and verbenas right under your feet? If so, you have a garden something like my own used to be. It is no wonder that men speak lightly of our flower gardens, and any power for good they may have. Some flower gardens are discouraging sights. But we can reform. A garden is "a lovesome thing" and out of it can come health and good looks and happiness to the woman who loves to grow things. The drawings will show one way of improving the looks of a plain little ranch-house and its meager garden. Make a rough outline of your house, showing the position of the tallest trees in relation to the house. In drawing No. 1, I have drawn a dotted line to the trees as they stand in relation to my house. The highest points showed me where I would have the highest points in my garden. I will set out my garden accordingly, crushing out the desire to have tall hollyhocks near the front gate and verbenas at my back door. I will put tall dahlias, hollyhocks, gladiolas, and chrysanthemums near the door of the

it in mind, things don't grow luxuriantly in California in hot dry spaces. The ground keeps moisture where it is well shaded by the low-growing things. Eliminate all set beds. If your garden is large, you must have walks, but don't have many. If your garden is small, just make it a mass of blooms that come from good old hardy plants that don't care if you miss a day mow and then from their presence. Above all things, have a garden. Don't wash your windows or scrub your back porch quite so often, and take the time to live with your flowers.

FARM BOOKS.

The following list of farm books are kept in stock and will be mailed on receipt of prices quoted:

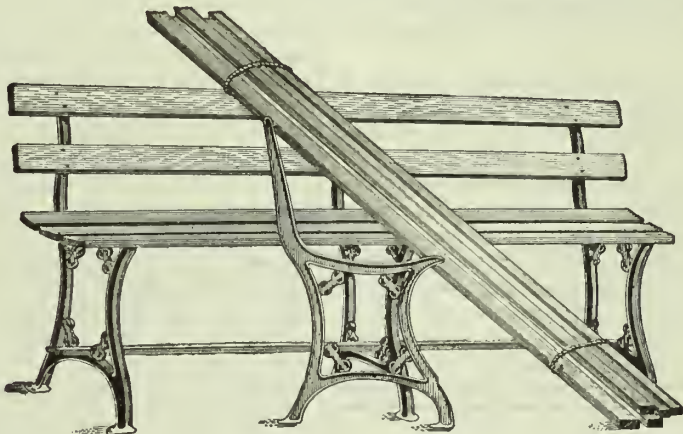
Farm Development, Hays.....	2.00
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The Septic Tank.

[Written for the PACIFIC RURAL PRESS by
F. W. KERNS, San Francisco.]

[Early this year several articles appeared in these columns on the construction of a private sewage system for the farm. The writer of the following article is an agricultural engineer of note and has some valuable amendments to make to the suggestions given. In the accompanying article the theory of the septic tank is explained. In a later article will be given definite plans for a private system.—EDITOR.]

Septic means putrefying or rotting; a septic tank is one in which a process of rotting is going on continuously. The septic process is not new; it is as old as the ordinary cesspool, for a septic tank is merely a cesspool that has an artificial outlet, instead of being dependent on the porous spaces in the surrounding earth for drainage. The septic tank, however, is an improvement on the crude cesspool, for there is no danger of pollution of well water from a properly constructed septic tank; and as the tank is provided with an outlet and is cleaned occasionally, it does not overflow, as a cesspool sometimes does when the pores of its earthen walls become clogged with grease.

As a method of sewage treatment on a large scale, the septic process has been much overrated, and is being abandoned for other methods in many places. For residential use, though, the septic tank is probably as satisfactory and economical a form of treatment as has yet been devised; particularly in California, where a warm climate the year round favors the action of bacteria. Its principal advantage lies in the reduction in amount and the convenient storage for consider-

able periods of sludge, the name given to the solid particles that settle from sewage when it is at rest or flowing slowly.

When the septic process has started, certain bacteria that work without air attack the organic matter in sewage and convert part of it into gas and another part into liquid. They of course have no effect on sand, grit, or other inorganic material. It was at first claimed that all of the sludge was thus decomposed, but careful measurements have shown that only from 10 to 33%, dependent upon the character of sewage and time of storage, is liquefied and gasified. However, the septic process reduces the amount of sludge more than any other process, and the amount of reduction increases with the length of time it is stored.

An unpleasant odor accompanies septic action, as surely as an apple falls to the ground, and it is just as well to understand this first as last, in spite of statements often made to the contrary. The principal cause of this offensiveness is the generation of a gas called hydrogen sulphide, which has the familiar odor of rotten eggs. When this gas is generated in appreciable quantities, it puts to shame the innocent bit of limburger cheese made famous by Mark Twain in "The Invalid's Story." The effluent, or liquid flowing from the tank, may be quite clear and practically inodorous, while the gases rising from the decomposing sludge in the tank are far from pleasant. The tank should therefore be located on the opposite side of a dwelling from which the prevailing winds come. The gas bubbling up through the sludge keeps it stirred up, so the effluent, instead of being clear, is more apt to be slightly turbid from the small particles of sludge carried out in it. This will not cause serious trouble in the disposal of the effluent from a small plant, however.

Another fact that should be remembered is that the tank comprises but half of the treatment. The effluent, though it might be clear, not only contains dissolved substances that are capable of putrefying and causing as much of a nuisance as the original sewage, but the septic treatment introduces toxins or poisons into the sewage and also robs it of its oxygen, so that subsequent treatment is rendered more difficult than treatment of the original raw sewage. This is one of the principal objections to septic treatment.

The second half of the treatment consists in allowing another form of bacteria, that work in air, to act on the effluent, introducing oxygen and decomposing the substances that are still capable of putrefaction. This action is similar to the final reduction of any animal or vegetable substance to dry inoffensive matter by air.

There are various methods of accomplishing this second part of the treatment, such as running the effluent over various forms of filters, spreading it out on porous soil, or using it for irrigation on alfalfa, hay, or other products not used for human consumption. The simplest method, if a perennial stream of any size compared with the flow of the effluent is available, is to allow it to drain into the stream. If a stream is not available, a simple inexpensive treatment is to allow the effluent to diffuse underground through drain tiles, as illustrated in the issue of January 25th. If this cannot conveniently be done, or roots or other considerations interfere, the effluent may be filtered and then led into an ordinary cesspool. If there is no danger of contaminating a water-supply, the effluent may be discharged directly into

a cesspool where it will diffuse, unless the earth is very close grained, as most of the grease and solids will have been removed by the tank.

Some points on the design of septic tanks for residential use, and something

on the Imhoff tank, an improved tank that makes use of the septic principle and that gives better results where the expense of a larger installation can be afforded, will be considered in a later article.

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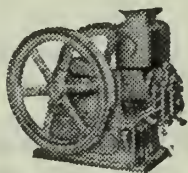
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AGRICULTURAL REVIEW.

In the Orchards.

Very few thrips have been coming out in most of the State this season. The greatest emergence in the Santa Clara valley occurred about March 6 to 10. Only a few growers found it necessary to spray.

Work on the development of 5000 acres in the Tejon grant, Kern county, for citrus planting has begun by H. W. Kies, formerly a citrus grower in Cuba.

Rumors that purple scale had been found on a Fair Oaks orange grove resulted in a careful examination of the grove by Commissioner F. R. M. Bloomer, and not a scale or a sign of one was found.

The Fruit Growers' Association has been formed to fight the proposed eight-hour law. H. S. Maddox, secretary of the Yolo County Board of Trade, was appointed secretary.

It is stated that the Fresno free market has passed largely into the hands of dealers and that the prices have gone up accordingly.

The subscription fund toward the El Dorado County Bartlett Pear Show is rapidly approaching the \$3000 mark, which is the sum necessary before the show work will start.

Rabbit drives have been held in Stanislaus and Sutter counties. In the former 300 rabbits and several coyotes were killed. In the Sutter drive between 500 and 1000 were killed, most of which were shot.

The Atwater cannery has been sold to the Sunlit Fruit Co. The cannery was started as a co-operative concern.

Twenty eggs shipped from Chico by parcels post through four zones to Gonzales, Monterey county, required 27 cents postage. At that rate the parcels post won't solve the high cost of living.

The Penn Valley Creamery at Smartsville, Nevada county, has been given a general renovation. A number of the dairymen in the vicinity have taken up herd testing and the dairy industry is taking on a decided impetus.

Forest Fires Decreasing.

The Department of Agriculture announces that the losses by fires in the National Forests for the year 1912 were the lowest of recent years, the total damage being estimated at \$75,290, or less than one dollar for ever 2000 acres of area. This good record is attributed to favorable weather conditions in most localities and the increased efficiency of the fire-fighting organization.

As Congress makes available the means for extending the system of communications in the National Forests, the equipment of trails, roads, telephones, and lookout stations is yearly enlarged, and the fires, it is said, are discovered more quickly and fought more rapidly.

Lightning caused more fires than any other agency, followed by railroads, campers, and incendiaries, in the order given. The greatest losses occurred in Arizona, Arkansas, and California, in which States there was also the largest proportion of fires caused by lightning and by incendiarism. About 27% of all the fires were started by lightning, and about 38% were due to carelessness. The proportion in each case was practically the same as in the previous year.

The total number of fires was 2472, as compared with 3369 in 1911. They burned over, in the aggregate, 230,000 acres as against 780,000 in 1911. California led all States in total number of fires, and in the number caused by lightning.

Of the 2472 fires, over 75% were put

out before 10 acres were burned over, and nearly 50% before one-quarter of an acre was covered. Only 12 fires caused damage of more than \$1000 each.

With the Stockmen.

D. A. Vaughn has just put six young pure-bred Hereford bulls on his ranch in the Tulare foothill district. They were secured from the Kern County Land Co. and cost \$700.

Charles Conroy has secured 3100 acres of the Bidwell ranch between the Humboldt road and Big Chico creek, Butte county.

The combination of cheap potatoes, poor range and high-priced alfalfa is being worked by Frank Kohrs of the Hubbard & Carmichael ranch near Newman. Since the cattle had to be fed, and alfalfa and grass were scarce, Kohrs purchased several carloads of potatoes at Stockton at \$6 per ton delivered. These are sliced and have proved very satisfactory as a stock food.

The owners of the Mercier Stock Farm near Modesto have purchased 4000 acres at Lancaster, Kern county, and will move their pure-bred Holstein cattle, Belgian horses and Poland-China hogs there in the near future. The business of the company outgrew the old ranch.

Owing to the exceptionally poor pasturage in Alameda and San Joaquin counties, stockmen are trying to have special grazing privileges granted in the National Forests this year.

Great Land Development.

The Western Pacific is developing a large amount of land along its property close to the California-Nevada line. Wells are being sunk and good supplies of water secured.

Two large deals were recently made in the Porterville district. Frank Brundage purchased the Priest ranch of 1250 acres, and W. A. Sears bought the J. Veith property of 1120 acres. The land will be planted in large part to alfalfa.

The Deer Creek Land Co. of the Porterville foothills district recently sold 300 acres to Herbert Paterson of Winnipeg, Canada. The latter, representing a syndicate, will plant the land to oranges.

J. C. Agostinho of Los Banos recently purchased 100 acres of land in the Ora Loma tract south of Los Banos and will start a fine dairy thereon.

Work is under way to reclaim 2000 acres of the Patterson ranch, bordering the San Joaquin river, that is now subject to overflow. A contract for a levee about five miles long has been let to John Hannafin. The land will be subdivided and put on the market when reclaimed.

Newmark & Lipton of Los Angeles are developing a 750-acre lease on the Bixby ranch, northeast of Olive, Orange county. About 250 acres are going into beans, the rest to barley.

Various land transactions totaling about \$100,000 occurred in the vicinity of San Jacinto, Riverside county, in one week recently.

M. H. Bowman of Los Angeles has secured 263 acres of land in the El Sobrante ranch to subdivide the same for oranges and alfalfa.

The W. H. McKittrick ranch in Kern county is being put out to alfalfa and will be subdivided for dairy purposes later.

General Agriculture.

The Alameda Sugar Co. is being troubled with gophers and is paying 5 cents apiece for all caught on their property. In 13 days 2200 gophers were caught.

The rice crop in the vicinity of Biggs,

Butte county, last year was worth about \$50,000.

There are about 4200 acres in sugar beets in Tulare county this year.

On the Campbell grain ranch west of Maxwell, Colusa county, 26,000 acres are being summer fallowed. Four large tractors and five eight-mule teams have been used.

A five-acre thornless cactus farm is planned for the 1915 show at San Diego.

C. A. Canfield recently purchased 1000 acres of land in the San Luis Rey valley, San Diego county, and is planting it to barley.

Despite losses by frost the Mexican tomato crop will be treble what it was a year ago, according to a Consular Report.

In the Vineyard.

The raisin crops of the last couple of years of the Kearney ranch have been sold for 2½ cents to a packing company. The Kearney ranch has also contracted the coming crops for three years to the California Associated Raisin Co. This company is now in the field for the 1912 crop, and this seems to have precipitated a lively scramble for raisins among the packers.

Contracts for wine grapes at \$20 per ton have been offered to Sonoma county growers around Cloverdale, said contracts to run ten years.

Irrigation

A reservoir site which will store water for 100,000 acres, is it said, has been found near Alturas, Modoc county. It is known as Big Sage Basin. The dam would be about 41 feet high and 517 feet long. Efforts to start a company to store water are being made by the Ivory Livestock Company.

At a recent meeting of the directors of the Tulare Irrigation District the water rate for the coming year was fixed at \$1.50 per acre.

Water in Kings river has been rather low, and the Fresno Canal & Irrigation Co. has been alternating the different canals, rather than running small amounts in all continuously.

The directors of the Turlock Irrigation District have let contracts for the construction of three new canals. The bid accepted for the work was for \$19,661.70.

The Pacific Gas & Electric Co. is investigating the advisability of putting water on several thousand acres of land in the southwestern portion of Nevada county.

Creamery Notes.

The payroll of the Kings County Creameries for February amounted to approximately \$130,000, both the prices and the amount of fat received falling off somewhat from January. A similar condition occurred in the neighboring county of Tulare.

The Orland Creamery Company has been incorporated with a capital stock of \$40,000. The company has been operating a creamery for some time, but has not been incorporated.

Pure-Bred Hogs for Nicaragua.

Per steamer sailing March 21, the George H. Croley Co., the old established live stock and poultry supply dealers of San Francisco, shipped to Corinto, Nicaragua, a pair each of Tamworth and Berkshire pigs. All four animals were splendid specimens of their variety; the Tamworths having been bred by Kennedy Bros. of Amsterdam, Merced county, and the Berkshires by the California Nursery Company of Niles, Alameda county.

(Continued on Page 415.)

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WOODBURN, OREGON.

The Home Circle.

The Slipper-Maker's Fast.

Isaac Josephs, slipper-maker, sat up on the fifth floor of his Allen street tenement, in the gray of the morning, to finish the task he had set himself before Yom Kippur. Three days and three nights he had worked without sleep, almost without taking time to eat, to make ready the two dozen slippers that were to enable him to fast the fourth day and night for conscience' sake, and now they were nearly done. As he saw the end of his task near, he worked faster and faster while the tenement slept.

Three years had he slaved for the sweater, stinted and starved himself, before he had saved enough to send for his wife and children awaiting his summons in the city by the Black Sea. Since they came, they had slaved and starved together, for wages had become steadily less, work more grinding, and hours longer and later. Still, of that he thought little. They had known little else, there or here, and they were together now. The past was dead; the future was their own, even in the Allen street tenement, tolling night and day at starvation wages. Tomorrow was the feast, their first Yom Kippur since they had come together again,—Esther his wife, and Ruth and little Ben,—the feast when, priest and patriarch of his own house, he might forget his bondage and be free. Poor little Ben! The hand that smoothed the soft leather on the last took a tenderer, lingering touch as he glanced toward the stool where the child had sat watching him work till his eyes grew small. Brave little Ben, almost yet a baby, yet so patient, so wise, and so strong!

The deep breathing of the sleeping children reached him from their crib. He smiled and listened, with the half-finished slipper in his hand. As he sat thus, a great drowsiness came upon him. He nodded once, twice; his hands sank into his lap, his head fell forward upon his chest. In the silence of the morning he slept, worn out with utter weariness.

He awoke with a guilty start to find the first rays of the dawn struggling through his window, and his task yet undone. With desperate energy he seized the unfinished slipper to resume his work. His unsteady hand upset the little lamp by his side, upon which his burnishing iron was heating. The oil blazed up on the floor and he ran toward the nearly finished pile of work. The cloth on the table caught fire. In a fever of terror and excitement the slipper-maker caught it in his hands, wrung it and tore at it to smother the flames. His hands were burned, but what of that? The slippers, the slippers! If they were burned, it was ruin. There would be no Yom Kippur, no Feast of Atonement, no fast,—rather, no end of it; starvation for him and his.

He beat the fire with his hands and trampled it with his feet as it burned and spread on the floor. It only flared up more brightly. His hair and his beard caught fire. With a despairing shriek he gave it up and fell before the precious slippers, barring the way of the flame to them with his body.

The shrieks woke his wife. She sprang out of bed, snatched up a blanket, and threw it upon the fire. It went out, was smothered under the blanket. The slipper-maker sat up, panting and grateful. His Yom Kippur was saved.

Some one passing in the street had seen the glare in the window, and sent an alarm for the firemen. They came, and climbed up many stairs to no purpose. There was nothing for them to do. The slipper-maker was back at his bench, working as if his life depended upon it,

as indeed it nearly had. Few of the tenants in the big building ever knew there had been a fire. They awoke to hear of it when all Jewtown was stirring with preparations for the feast.

The fire was reported on the police returns. When the reporters came to see about it, the slipper-maker was asleep, his task ended at last. His wife, a little woman with a patient voice, was setting the things on the table for the family dinner that was to usher in the long fast. Two half-naked children played about her knee, asking eager questions about it. The precious slippers were there, finished and ready, two dozens, all safe. I heard their story from the woman herself. Asked if her husband had often to work so hard and what he made by it; she shrugged her shoulder and said, "The rent and a crust."

And yet all this labor and effort to enable him to fast one day according to the old dispensation, when all the rest of the days he feasted according to the new.—Jacob A. Riis in Atlantic.

Household Hints.

The handsomest lunch cloths are made of fine linen and have a deep border of renaissance lace. Dollies and buffet covers are also edged with the same beautiful lace. It washes well, and is handsome as long as it lasts.

It is now optional with a widow if she keep her husband's initials or not. It is quite proper to use them in addressing her, and Mrs. Grundy is more and more sanctioning it, to distinguish the widow from the divorced woman. The latter takes her own initials.

Crumbs spread over the tops of dishes should be mixed evenly with melted butter over the fire. This is a better method than having lumps of butter dotted over the crumbs after they are spread. When the sauce bubbles through the crumbs on top of a scallop dish the cooking is completed.

Mothers cannot too soon begin to teach their small daughters that to care daintily and neatly for their belongings, no matter how simple they are, is one of the virtues. Gloves pulled out and carefully put away; ties folded and put in a box with a sachet bag; handkerchiefs similarly looked after, and shoes mated and slipped in the proper pockets or stood on a shelf—all these little niceties begun at a tender age become second nature. Costly things soiled and crumpled are vulgar. Exquisite neatness with the simplest belongings betrays refinement.

"A healthy infant sleeps most of the time during the first few weeks," says the New York State Medical Journal, "and in the early years people are disposed to let children sleep as they will. But from six to seven years old, when school begins, this sensible policy comes to an end, and sleep is put off persistently through all the years up to manhood and womanhood. At the age of ten or eleven the child is allowed to sleep only eight or nine hours, when its parents should insist on its having what it absolutely needs, which is ten or eleven at least. Up to twenty a youth needs nine hours sleep, and an adult should have eight. Insufficient sleep is one of the crying evils of the day. The want of proper rest and normal conditions of the nervous system, and especially the brain, produces a lamentable condition; deterioration in both body and mind, and exhaustion, excitability and intellectual disorders are gradually taking the place of the love of work, general well being and the spirit of initiative."

The grandfather of a boy of six or seven years is a man of prominence. A lady, calling at the home of this gentle-



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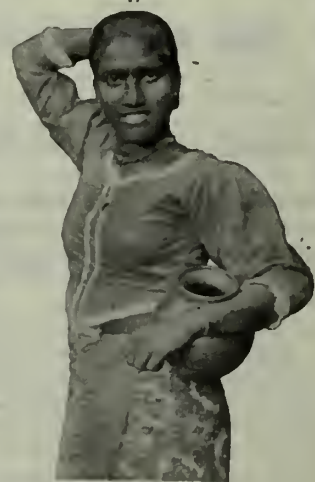
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man, was entertained by the little grandson, and the caller said: "You ought to be very proud of your grandfather. You know that he is a great man." "Huh!" said the boy. "If you think that my grandfather is a great man, you just ought to know my grandmother!"

When Heaters Burn Out.

To make your air-tight heater last for years after bottom becomes burned out: Procure about four pounds of Portland cement and about one quart of common sand. Add water and mix quickly to the consistency of batter. Have your heater ready and pour the cement inside to the depth of about two inches. Allow to stand

for 24 hours and your heater will be better than new, and will not need either ashes or sand in the bottom.

To Get Rid of Moths.

When moths get into dresser drawers, sweep them clean, expose the wood to the sunlight, and, with an atomizer, spray turpentine where the pests are liable to be. A lighted match or sulphur candle will kill them.

Agreed.

"My dear girl," said her mother-in-law, "any woman would be satisfied with what John says he gives you."
"So would I."

COLD STORAGE TEMPERATURES.

The housekeeper or producer frequently finds it necessary to keep produce at a temperature which will preserve it with the least possible deterioration. William H. Kritzer has provided us with the following table showing at what temperature various food products should be kept. These are the temperatures actually used by the cold-storage companies.

Product.	Temp., degrees Fahrenheit.
Butter	18 to 20
Cheese	34
Eggs	31
Canned goods	35 to 40
Apples	32 to 36
Berries	36
Cantaloupes	40
Dates	50 to 55
Figs	50 to 55
Dried fruits	35 to 40
Grapes	34 to 36
Lemons	33 to 36
Oranges	34 to 36
Peaches	34 to 36
Pears	34 to 36
Watermelons	34 to 36
Brined meats	38
Fresh beef	33
Dried beef	38
Veal	32 to 33
Pork	29 to 32
Lard	38
Livers	20 to 30
Asparagus	34 to 35
Beans, dried	32 to 40
Cabbage	34 to 35
Carrots	34 to 35
Celery	34 to 35
Corn	35
Peas, dried	35 to 40
Potatoes	36 to 40
Onions	36
Honey	45
Hops	40
Oils	35
Dressed poultry	28 to 30
Poultry, dry picked	26 to 28

WHY FARMERS SHOULD CO-OPERATE.

To the Editor: In a former letter I pointed out that farmers were aspiring to become merchants—that is, they wish to extend their service to the public by distributing their products directly to the consumer.

The operation of placing the farmer's product in the hands of the consumer requires an organization of people, capable of acting in an intelligent manner. This, the middlemen now possess, though of course there is such an organization for each man, reaching as far as his interests reach, and competing with one another for markets.

Mr. Teague, in the issue of February 1st, estimates a saving of 40 per cent by substituting a single, comprehensive organization for the many independent organizations now doing the distributing. His estimate is, of course, more or less of a guess, but there is certainly room for much saving.

The middlemen could, by getting together, establish such an organization, and thereby make the gain for themselves; but in this event the producer and consumer would be contributing to the maintenance of a third party or go-between. At present the middlemen make their profit by beating down the price paid the producer and pushing up the price charged the consumer, and any organization of middlemen would continue this.

A direct marketing organization operated by the producers, or even an organization for supplying retail dealers direct from producers, would place the farmers in possession of knowledge of market demands that would enable them to avoid over-stocking markets by too extensive plantings of any crop, as did the potato and onion growers along the San Joaquin last season.

A farmers' organization would be required to watch a middlemen's organization, in order that the farmers' interests

would not suffer at the hands of the middlemen. Few experiments in co-operative marketing have failed to benefit the co-operators, and this, too, without the advantage to be gained by a more comprehensive organization, so it would appear wise to eliminate the middleman's organization. Never use two poles to knock the persimmon when one pole will do the trick better.

With the first man to join effort with his neighbor to overcome an obstacle, that neither could surmount singly, human progress began yielding to the force of co-operation, but the goal is not yet reached. Some of the obstacles in the way of progress are ignorance, prejudice and individual selfishness. The two first must be overcome before the third can be curbed. I am glad that for thirty-eight years our good Editor has been aiding to aid the cause of progress. May he spit on his hands, jump up and crack his heels together and start in for another thirty-eight years' campaign.

W. O. RETHERFORD.

Oakley, Cal., March 18.

CROPS BETWEEN FRUIT TREES.

To the Editor: I haven't written to the PRESS for a long time, so will be sociable. I note in your issue of March 15, regarding potatoes between trees: I would state I have never through experience or observation, found it profitable to grow any kind of root crop between trees, for they attract gophers and when the vegetables are gone they attack the roots of trees. I have known a nice young orchard of apple trees to be ruined in this way. Where there is an abundance of moisture, melons, pumpkins or beans are more profitable and give an incentive to more thorough cultivation. But neither last year or this would I plant any kind of vines between trees.

Last year there was a deficiency of moisture, so I dug holes for my tomatoes and set them early. I dig below the plow pan or hard crust the plow makes

and get the lower strata of moisture. I have two objects: first, to get plants rooted early; and if I have a frost a stick across the hole and a sack over, tides the plant over the frost season; then I trim the sides and cover with earth as they grow. This prevents them cooking when the hot dry summer winds come. I prune, stake and spray, and though I do not follow this method for market garden purposes, if one has early fall rains it gives an abundance of tomatoes for canning and what one requires for summer use.

The success of farming depends on one's ability to adapt himself to local conditions, and the conditions governing the desert do not govern the foothill section. In the desert the soil is either sandy or a volcanic ash, while the foothill lands, except bottom lands, are inclined to pack and run together, so one must keep a-stirring all the time. Last year my yield of hay was 12 tons on 6 acres, and 60 acres winter sowing gave 27 tons. This I know from baler's weight and it is not guesswork. I carried my dry-farmed garden through February and the late rains gave me the best garden I have had; so one has to adapt himself both to the season and local conditions, for what would fit one locality would not apply to another; and one should not allow his enthusiasm and desire to overcome his reason, observation and experience and a wish to learn to overcome difficulties.

Raymond, Calif.

A. O. NELSON.

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Porches and steps exposed to all kinds of weather and constant hard wear soon become worn and shabby if not kept neatly painted. Good paint not only protects and preserves but beautifies.

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THE STOCKTON PAINT COMPANY

Offices and Factories: STOCKTON, CALIF.

THE MARKETS.

San Francisco, March 26, 1913.

(Unless otherwise noted, quotations represent prices paid to the growers.)

Cereals.

WHEAT.

Local business is running in the same old groove, with only moderate demands and liberal supplies, most of which are brought from the north. Values show little change, most lines being firm.

California Club	.....	\$1.57½@1.60
Sonora	.....	Nominal
White Australian	.....	Nominal
Northern Club	.....	1.57½@1.60
Northern Bluestem	.....	1.62½@1.65
Northern Red	.....	1.57½@1.72½

BARLEY.

The export movement is over for the season, and brewing and shipping grades are nominal. Feed is a little easier since the rain, but there is no quotable change in prices. The movement is light.

Brewing and Shipping	.....	Nominal
Choice Feed, per ctn.	.....	1.30 @1.35
Common Feed	.....	Nominal

OATS.

White oats are firm at higher prices, as there is some demand and supplies are moderate. Considerable off-grade red feed is offered below quotations, but desirable stock is quoted as before.

Red Feed	.....	\$1.75 @1.85
Seed	.....	2.00 @2.10
Gray	.....	Nominal
White	.....	1.55 @1.60

CORN.

A little choice California small yellow has been sold considerably above quotations, but practically everything offered is damp and will not bring an advance. Eastern yellow is a little lower.

Cal. Yellow	.....	\$1.45
Eastern Yellow	.....	1.40 @1.45
Eastern White	.....	Nominal
Kafir	.....	1.50 @1.55
Egyptian	.....	1.70

RYE.

There is nothing new in this line, values being scarcely more than nominal, with very little demand.

Rye, per ctn.	\$1.45 @1.50
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BEANS.

The bean market is in a rather uncertain position at present. The fairly active movement noted a few weeks ago has given way to a condition of marked dullness, altogether unexpected at this season. The local movement is light, and hardly any orders are being received for Eastern shipment. White beans are still fairly firm, large whites being slightly higher, but other varieties are inclined to easiness, though there has been no quotable decline, and dealers show a disposition to hold their stock. It is considered likely that recent storms in the East may cause a material curtailment in production in that district, which would tend to cause a stronger market for some descriptions later in the year. According to Japanese reports, a considerable acreage formerly in tea is being turned over to beans, which promise a better profit.

Bayos, per ctn.	.....	\$3.25 @3.45
Blackeyes	.....	3.15 @3.25
Cranberry Beans	.....	4.70 @5.00
Horse Beans	.....	2.25 @2.35
Small Whites	.....	4.65 @4.75
Large Whites	.....	4.35 @4.40
Limas	.....	5.40 @5.50
Pea	.....	Nominal
Pink	.....	3.70 @3.90
Red Kidneys	.....	4.00 @4.25
Mexican Red	.....	4.00 @4.20

SEEDS.

There is no movement of any consequence on most varieties. Broomcorn seed and hemp are a little lower, but all other lines are steady at the former quotations.

Alfalfa	.....	15 @16 c
Broomcorn seed, per ton	.....	\$27.00@28.00
Brown Mustard, per lb.	.....	3½c
Canary	.....	5½@ 6 c
Hemp	.....	3c
Flax	.....	2½@ 3 c
Timothy	.....	Nominal
Yellow Mustard	.....	Nominal

FLOUR.

The local market has shown no change for some time, values being steadily held, with a fair demand.

Cal. Family Extras	.....	\$5.60 @6.00
Bakers' Extras	.....	4.60 @5.20

Superfine	.....	3.90 @4.10
Oregon and Washington	.....	4.90

Hay and Feedstuffs.

HAY.

Arrivals in the local market continue very light, but the demand is also limited and the market is weak. Values show no quotable reduction, but the trade here looks for lower figures very soon, and holders in the country show more disposition to sell than for some time past. The larger dealers predict a weak market between now and harvest time. Alfalfa shows less activity since the rain. Last week's rain was well distributed, many districts being well drenched, and if the April rainfall is normal the prospect is for good crops. In some places the output will be below normal, but other sections anticipate an unusually heavy crop.

No. 1 Wheat, or Wheat and

Oat	.....	\$18.00@20.50
do No. 2	.....	15.00@18.00
Lower grades	.....	12.00@14.50
Tame Oats	.....	15.00@20.00
Wild Oats	.....	12.00@16.50
Alfalfa	.....	10.50@13.50
Stock Hay	.....	9.00@10.00
Straw, per bale	.....	35 @ 75c

FEEDSTUFFS.

Nothing seems to be in very heavy demand, and values show little firmness. Bran is quite easy, with some sales a little below quotations, and oilcake meal is lower.

Alfalfa Meal, per ton	.....	\$19.00@20.00
Bran, per ton	.....	24.00@25.00
Oilcake Meal	.....	34.00@35.00
Cocoanut Cake or Meal	.....	Nominal
Cracked Corn	.....	31.00@32.00
Middlings	.....	33.00@34.00
Rolled Barley	.....	27.00@28.00
Rolled Oats	.....	33.00@34.00
Shorts	.....	28.00@29.00

Garden Truck.

VEGETABLES.

The onion market shows no improvement, Oregon stock being a little lower at the top quotation, while the demand is light and supplies ample. Arrivals of asparagus are running a little heavier than last week, and ordinary stock is lower, though the best offerings are well maintained. So far there has been enough shipping business to prevent any heavy surplus in this market. Arrivals of green peas have increased materially, and prices are much lower, but well maintained as now quoted. Rhubarb prices have been fairly well maintained, though ordinary stock is somewhat lower. Mexican tomatoes are higher, while eggplant is comparatively easy. Carrots and cauliflower show a sharp advance, the latter having been in rather light supply here for some time. Southern lettuce is now finding competition from nearby gardens, which has driven prices down quite sharply. Celery also is lower, as everything coming in lately has been of very trashy appearance, though anything really good doubtless would bring a substantial premium.

Onions: River Yellow, ctn.	.....	50 @ 65c
Oregon, per lb.	.....	75 @ 85c
Garlic, per lb.	.....	1½ @ 2c
Tomatoes, per box	.....	\$2.00 @ 2.50
Cucumbers, per doz.	.....	1.25 @ 1.50
Cabbage, per ctn.	.....	40 @ 50c
Carrots, per sack	.....	75c
Cauliflower, per doz.	.....	65 @ 75c
Celery, crate	.....	50c @ 1.25
Rhubarb, box	.....	1.00 @ 1.75
Mushrooms, lb.	.....	15 @ 25c
Artichokes, doz.	.....	30 @ 75c
Sprouts, lb.	.....	7 @ 8c
Green Peppers, lb.	.....	20 @ 30c
Lettuce, crate	.....	75c @ 1.25
Eggplant, lb.	.....	8 @ 12½
Green Peas, lb.	.....	7 @ 9c
Asparagus, lb.	.....	4 @ 7c

POTATOES.

Old potatoes continue to move off very slowly, with excessive supplies. Everything in this line shows some decline, Oregon stock being very little higher than that from the river. Supplies of new potatoes are still rather light, and prices are a little higher than last week.

River Whites, ctn.	.....	30 @ 50c
Salinas, ctn.	.....	\$1.00 @ 1.10
Oregon, ctn.	.....	50 @ 65c
Sweet Potatoes	.....	2.25 @ 2.50
New Potatoes, lb.	.....	6 @ 7½c

Dairy Produce.

POULTRY.

The general situation remains about as before, arrivals of both local and East-

ern stock being very light, and all offerings are quickly snapped up at high prices. Hens show a further advance, and broilers are very scarce at extreme figures.

Large Broilers, per lb.	.....	30 @32 c
Small Broilers, per lb.	.....	30 @35 c
Fryers, per lb.	.....	25 @27 c
Hens, extra, per lb.	.....	17 @19 c
Hens, large, per lb.	.....	17 @19 c
Small Hens, per lb.	.....	17 @18 c
Old Roosters, per lb.	.....	10 @12 c
Young Roosters, per lb.	.....	22 @25 c
Squabs, per doz.	.....	\$3.00 @ 3.50
Geese, per pair	.....	1.50 @ 2.00
Ducks, doz.	.....	4.00 @ 6.00
Turkeys, dressed	.....	22 @24 c

BUTTER.

The week opened with quite a sharp advance, due to a strong demand for shipment, but the market has since subsided to about last week's level. Supplies are not excessive, however, and local dealers are buying freely, keeping values very steady as now quoted.

	Thu.	Fri.	Sat.	Mon.	Tu.	Wed.
Extras	35	36	36	38½	36	36
Firsts	34	34½	34½	37	35	35

EGGS.

The market is described officially as firm, prices showing no change whatever since a week ago. The only feature worth noting, aside from the comparatively large arrivals, is the steady movement into storage, which prevents any surplus accumulation. The lack of fluctuation in prices is accounted for by absence of the usual competition among storage operators.

	Thu.	Fri.	Sat.	Mon.	Tu.	Wed.
Extras	18	18	18	18	18	18
Firsts	17½	17½	17½	17½	17½	17½
Selected						
Pullets	16	16	16	16	16	16

CHEESE.

The market is only moderately active, and with liberal arrivals in all lines, prices are lower, flats being weak at the new figures.

Fancy California Flats, per lb.	.....	15 c
Firsts	.....	14½c
New Young Americas, fancy	.....	18 c
Monterey or Jack Cheese	.....	15½ @ 16½c

Deciduous Fruits.

Arrivals of strawberries have so far been rather intermittent, but some are offered nearly every day, and larger arrivals are expected next week. Prices have stood about as last quoted. Holders of stored apples, finding no possibility of cleaning up through nearby markets, are now making heavy shipments to Eastern and foreign markets, materially reducing the supply in this State. Carload prices for shipment are said to be a little better than for some time past, and Newtown pippins are held a little more firmly locally, though supplies are still rather large. Belleflowers and some other lines find little demand, as offerings show some deterioration.

Strawberries: Southern, bskt	.....	40c
Apples: Fancy Red, box	.....	75c @ 1.10
Bellefleur	.....	65 @ 90c
Newtown Pippins, 3½ to 4-tier	.....	75c @ 1.35
Common	.....	40 @ 60c

Dried Fruits.

Prunes are quoted at a slightly wider range, poor stock in small sizes finding little demand. Good stock in the larger counts, however, is firmly held, as export requirements have gradually made considerable reduction in available offerings, and supplies in the East are said to be rather light. Otherwise there is no change in prices, but there is a little better feeling in the trade, due to increasing inquiries. The demand for apricots is reviving, and supplies are very light, nothing being held by growers. Some demand is also reported for pears. The raisin situation is still rather uncertain, though more will be known about the outlook next week, and meanwhile last week's prices stand. The New York Journal of Commerce says:

"Telegrams received in the trade reflect a firmer feeling in raisins for shipment from the Coast. However, buyers here believe that they will have little trouble in covering such small wants as are likely to arise within the next few weeks at the old prices from the smaller packers. Therefore, with the spot market unusually dull for this time of the year, owing to the rather large stocks in the hands of retailers, jobbers in this section are not inclined to increase purchases for forward shipment.

"There continues a firm feeling in large prunes for spot and for forward delivery, as the demand is mainly for this class of goods. No quotable change in prices is reported, but as stocks are getting into small compass, the trend of prices on these counts is upward. In the intermediate sizes the demand is limited at present, but stocks are not being urged, and the feeling among holders is firm. Small prunes are dull.

"Spot peaches are quiet but steady, and the Coast market is firm, though there seems to be little inquiry for forward shipments at present from this end. Apricots of the finer grades are firm under light offerings and some demand, but no quotable change in prices is to be noted.

Evap. Apples, per lb.	.....	3 @ 4c
Apricots	.....	Nominal
Figs: White	.....	Nominal
Black	.....	Nominal
Calimyrna	.....	Nominal
Prunes: 4-size basis	.....	2½ @ 4 c
(Premium: 1c for 40s-50s; 2c for 30s-40s.)		

Peaches	.....	3½ @ 4½c
Pears	.....	4 @ 7 c

Raisins—		
Loose Muscatels in sweatbox	.....	2½ @ 2¾c
Thompson's Seedless	.....	5 c
Seedless Sultanais	.....	3 @ 3½c

Citrus Fruits.

The movement of citrus fruits to Eastern markets continues. The growers seem to be taking advantage of the improved markets. They are giving their groves every attention possible and are looking forward to a fair crop next season.

Shipments are going East at the rate of about 70 cars of oranges and 7 cars of lemons per day, as against 225 cars of oranges and 12 cars of lemons at this time last year.

In the San Francisco market fancy navel are again quoted higher and are firm at the advance, with a good local demand. Frosted fruit is also higher. Otherwise values stand as before, and supplies in most lines are very light. Some Mexican limes have arrived, and are held at extreme figures.

Oranges, per box—		
Navels, good to fancy	.....	\$2.00 @ 4.00
Frosted	.....	75c @ 1.25
Grapefruit, seedless	.....	2.00 @ 4.00
Lemons: Fancy	.....	6.50 @ 7.00
Choice	.....	5.00 @ 6.00
Standard	.....	4.00 @ 5.00
Lemonettes	.....	5.00 @ 5.50
Limes	.....	8.00 @ 8.50

Nuts, Honey, Hops, Etc.

NUTS.

There is very little to be had in this line anywhere, and quotations are almost entirely nominal.

Almonds—		
Nonpareils	.....	17½c
I X L	.....	16½c
Ne Plus Ultra	.....	15½c
Drakes	.....	12½c
Languedoc	.....	11½c
Hardshells	.....	8 c
Walnuts, 1912 crop—		
Softshell No. 1	.....	16 @ 16½c
Hardshell No. 1	.....	15 @ 15½c
No. 2	.....	10½c
Budded	.....	17 c

HONEY.

Fancy grades find considerable demand locally, and as supplies everywhere are limited, values are very firmly held, white comb being higher. Lower grades are quiet, but steady, with no excessive offerings.

Comb, white	.....	15 @ 16 c
Amber	.....	11 @ 12 c
Dark	.....	9 @ 10 c
Extracted, white	.....	8 @ 10 c
Amber	.....	6½ @ 7 c
Off Grades	.....	5 @ 6 c

BEESWAX.

There is not much business here, but supplies are light, and the recent demand in the East has placed the market in a fairly firm position. Values show no further change.

Light	.....	32 @ 33 c
Dark	.....	26 @ 28 c

HOPS.

There is no movement of any consequence at present, the old crop being pretty well cleaned up. Prices are nominally as last quoted.

1912 crop	12½ @ 21c
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WOOL.

There has been some spring shearing in the southern mountain districts, and prices are quoted on such clips. Values

on other clips will probably be established before long, but the recent rain delayed the shearing. Eastern markets are reported very quiet and inclined to weakness.

Spring clip:

Southern mountain, free... 9 @12 c

HORSES.

Recent sales have been fairly well attended, most offerings of medium weights as well as drafters being well taken up, and increasing interest is shown by country buyers. Some good-sized lots of good Oregon, Utah and Nevada stock are being put on the market this week, the offerings showing a considerable range of weight.

Heavy drafters, 1700 lbs. and over \$300@350
Light Drafters, 1500 to 1650.... 250@285
Chunks, 1350 to 1500 lbs..... 200@250
Wagon Horses, 1250 to 1350.... 180@225
Delivery Horses, 1050 to 1250... 125@150
Desirable Farm Mares..... 100@125

MULES.

1200 lbs. \$200@250
900 lbs. 75@125
1100 lbs. 150@200
1000 lbs. 125@175

Live Stock.

Live ewes and spring lambs are somewhat lower than last week, but the market in general is very firm, and dressed mutton and lamb are higher.

Steers: No. 1 7½ @ 7½ c
No. 2 6½ @ 7 c
Cows and Heifers: No. 1.... 6¼ @ 6½ c
No. 2 5½ @ 6 c
Bulls and Stags..... 2½ @ 4½ c
Calves: Light 7½ @ 8 c
Medium 7 @ 7½ c
Heavy 5½ @ 6 c
Hogs: Grain-fed, heavy..... 8¼ @ 8½ c
150 to 250 lbs..... 8½ @ 8¾ c
100 to 150 lbs..... 8¼ @ 8½ c
Prime Wethers 5¼ @ 6¼ c
Ewes 5 @ 5¼ c
Lambs: Suckling 7½ @ 8 c

DRESSED MEATS.

Steers 11½ @12 c
Cows 11 @11½ c
Heifers 11 @11½ c
Veal, large 10 @11 c
Small 12 @13 c
Yearlings 12 @12½ c
Mutton: Wethers 11½ @12 c
Ewes 10 @10½ c
Spring Lambs 14 @15 c
Dressed Hogs 12½ @13 c

HIDES.

Dry hides and salted calf, kip and veal hides are slightly higher than for the last few weeks. Other lines find very little demand, but the former quotations are steadily maintained.

Heavy Steers, over 56 lbs. 14 c
Medium 13 c
Light Steers, under 48 lbs. 12 @13 c
Heavy Cows, over 50 lbs.. 12 @13 c
Light Cows, 30 to 50 lbs.. 13½ c
Kip 14 @15½ c
Veal 17 @18½ c
Calf 17 @18½ c
Dry—
Dry Hides 24 @25 c
Dry Kip, 10 to 15..... 24 @25 c
Dry Veal, 5 to 10..... 29 c
Dry Calf, 7 down..... 29 c
Horse Hides—
Salt: Large \$2.25
Medium 1.75
Small 75c
Colts 25 @ 50c
Dry 75c @ 2.00
Sheep Skins—
Long Wools \$ 0.85 @ 1.25
Medium Wool, 6 to 9 mos.. 60 @ 90c
Short Wool, 3 to 6 mos... 40 @ 60c
Lambs 35 @ 70c

A Good Cleaner.

Shave fine one bar of laundry soap and pour over it an equal mixture of ammonia and turpentine, about two table-spoons, and work it into a cake. It is fine for cleaning carpets and upholstered furniture and will not make the colors run. Dampen a sponge, rub on the soap and apply to dirty spots. Rinse sponge in clear water and go over the spots again. Go over the whole, if a good carpet or rug, and it will look like new.

"De singin' ob birds is sweet," remarked Uncle Eben; "but de cackle ob er chickin' on your own roos' has er heap mo' expression in it."

AGRICULTURAL REVIEW.

(Continued From Page 411.)

Government Dairy News.

There were recently opened 277 samples of butter packed for the navy in three States, after having been kept in cold storage for from 7 to 10 months, many of the samples coming from California. These were found to be of fine quality, scoring as "extras." This butter is all made from pasteurized sweet cream, contains no preservative other than 2½ to 3¼% salt and has but 13% moisture or less, provided it is tinned. The navy uses about 600,000 pounds of butter annually.

A company is being organized to manufacture butter, oleomargarine, lard compound, cheese and like products at Panama, according to a Consular Report. What are butter and cheese doing in that company?

A Consular Report also states that the Royal Agricultural Society of England is going to conduct extensive milking machine trials at Durham next month. Only one American machine had been entered.

Portland Stock Yards.

For the week ending March 21, at the Portland Stock Yards the prices for beef were a little less than they might be, on account of very liberal offerings. Half-fat steers went at from \$7.25 to \$7.50, top loads realized \$7.70. Despite a very heavy run of hogs the market supported a \$9.25 price range all week. Very little sheep business was done, lambs going at from \$7.15 to \$7.40 and wethers at about \$6.75.

To Market Honey Properly.

Considerable activity has occurred in the organizations recently, especially in the marketing line. The bee-men of southern California have organized a co-operative, non-profit organization to handle the honey produced by the members. Practically all the prominent bee-men of the southland are members. Fifteen districts are comprised in the territory covered. Thus another product is to be put on the market in the right way.

Other Organizations Active.

The fruit growers of the Healdsburg and Geyserville sections, following the successful methods of the Sebastopol Apple Growers Union, are organizing to pool their interests and sell their fruit as the Sebastopol growers have done. The committee in charge of organizing will be ready to start the Union in a short time.

The following have been elected officers of the southern California Poultrymen's Co-operative Association: M. A. Schofield, president; Joseph Davis, secretary and treasurer. The latter will also be manager of the company, which has a capital stock of \$25,000.

The Nevada Poultry Association has chosen the following officers: President, E. U. Hooper; first vice-president, A. L. Keaton; second vice-president, R. W. Williams; secretary and treasurer, John J. Lyons. They will hold office for the ensuing year, and will have direct charge of the next poultry exhibit.

Freaks.

Abe Lackey, Rialto, is said to be the owner of a chicken about a year old which has three legs, two being employed in the usual way, the third as an ornament. From Lincoln, Placer county, comes the story of a lamb belonging to Clarence Fuller which had two heads, two front feet and four back feet. It lived 36 hours.

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Rate 2c. per word. No order for less than 25c. per week. If you have anything to sell, or want anything, use these columns.

WANTED

SACKS WANTED—Farmers, stockmen, get the most for your sacks. Send sample by parcels post if possible. Agents wanted. H. EPSTEIN BAG CO., 3176 Mission St., San Francisco.

FARMS WANTED—We have direct buyers. Don't pay commissions. Write describing property, naming lowest price. We'll help buyers locate desirable property free. American Investment Association, 93 Palace Bldg., Minneapolis, Minn.

A practical farmer of 40 wants to lease a small well-equipped fruit or alfalfa ranch on a crop rental basis with privilege of buying the ranch on easy terms. Has no cash capital, but can offer in part payment a \$1650 equity in his new six-room home worth \$4500 in Oakland. Jas. O. Stewart, 2212 Magee St., Berkeley, Cal.

TREES AND NURSERY STOCK.

AVOCADOS (budded), Feijoas, Cherimoyas, and other subtropical fruiting plants and trees. We have the largest and finest stock of budded avocados, and the best varieties. We grow only subtropical fruits of proven adaptability and sterling merit. Send for pamphlet. WEST INDIA GARDENS, Altadena, Cal.

Large Imported German Pansies. Beautiful colors, well assorted plants, come in three sizes, \$3.00, \$2.00, and \$1.50 per 100. Postpaid. Send money orders payable to Endor Floral Gardens, 320 Market St., San Francisco, Cal.

FOR SALE—Florida sour orange seed. Order now while we have plenty. They will be higher later on. We also have grafted walnut trees, both black and soft root. Orange County Nursery, 6th and Main, Santa Ana, Cal. Red 3891.

FEIJOA—This superb new fruit is hardy all over California. Sure to be one of our great commercial fruits. Write for prices. COOLDGE RARE PLANT GARDENS, Pasadena, Cal.

FOR SALE—20,000 rooted seedling olive trees, ready to be set in the nursery. This stock will be large enough to bud or graft this fall. G. A. Lathrop, 605 Delta Bldg., Los Angeles, Cal.

FOR SALE—30,000 sweet orange seedling stock, 2 years old; some large enough to bud now; run from ¼ to ½ in diameter; not hurt by frost. R. TOON, 1337 West 24th St., Los Angeles, Cal.

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WALNUT TREES—Late varieties, grafted and budded on hybrid root—Eureka, Franquette, Mayette, Concord and Placencia. Dr. W. W. FITZGERALD, Elks Bldg., Stockton, Cal.

VILLA ANNA NURSERY—Fruit and ornamental trees. Burbank standard cactus a specialty. Santa Rosa, Cal. Write for catalogue.

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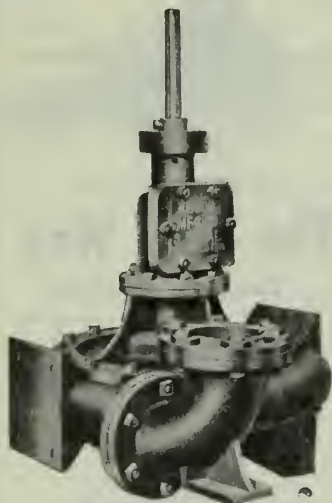
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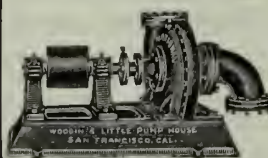
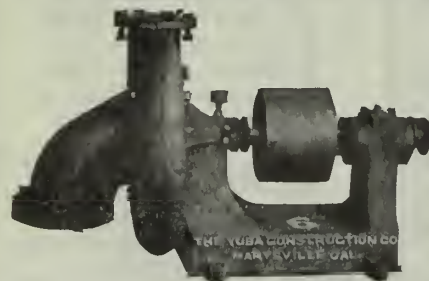


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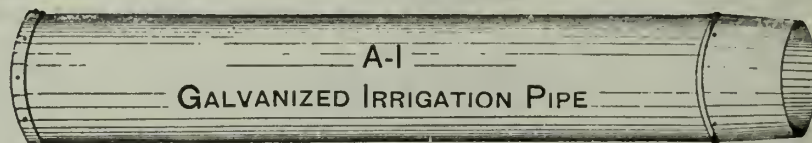


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"CALIFORNIA FRUITS AND HOW TO GROW THEM."

For sale by PACIFIC RURAL PRESS, 420 Market Street, San Francisco

THE PACIFIC RURAL PRESS

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SAN FRANCISCO, SATURDAY, APRIL 5, 1913.

Forty-Third Year.

The California Black Walnut.

[By, Professor R. E. SMITH of the University of California.]

[One of the most notable publications of the University Experiment Station for intrinsic interest of contents, for timeliness and popularity was the bulletin on "Walnut Culture and Walnut Blight," by Prof. R. E. Smith and his associates. The demand first was so keen that copies are no longer to be had, and we shall make leading parts of it available to our readers by re-publication as space will permit. We begin with the California black walnut, because it is the foundation of the extensions of our English walnut industry, because most trees now being planted are grafted upon the seedlings of this native species.—EDITOR.]

In the upper portion of the State no tree is more conspicuous as a shade and street tree, especially about the older towns, than that which is called the California black walnut (*Juglans Californica*). Among these may be found many specimens of the Eastern walnut (*Juglans nigra*), which may be easily identified by their rough nuts, late development in spring and early shedding of the leaves in the fall. Excluding these, there remain very numerous specimens of the so-called true California walnut, a tall, erect-growing tree, having somewhat smaller leaves and nuts and smoother bark than the eastern species, with nuts the surface of which is almost perfectly smooth. This type is popularly supposed to be native to, and commonly distributed in, the northern half of the State. Inquiry soon develops, however, that the majority of these trees have been planted where they now stand within the memory of people still living.

In this way, the history of numerous very fine, large, old trees can be ascertained, the oldest of which are invariably found to have been planted between 1850 and 1860. Such, for instance, are the two very large trees standing by the roadside just south of Gilroy, and numerous specimens about San Jose, Hayward, Stockton, Vacaville, Winters, Suisun, Santa Rosa, Napa, Colusa, Marysville, Yuba City, Chico, Tehama,



Northern California Black Walnuts, South of Gilroy.

and many of the old mining and commercial towns of the western slope of the Sierra Nevada, the San Joaquin valley, and on both sides of the Sacramento valley. In each and every case the history and original planting of these old trees, which represent the largest California black walnut trees in the State, can be definitely ascertained. In his investigations on the subject, Jepson found two localities where

this tree appeared to have been growing naturally at the time of the advent of the first white settlers. On this point he states as follows: "There are two centers of distribution, one in the north and one in the south, without connecting localities so far as I have been able to determine. In the north it occurs in the lower Sacramento region, keeping to the banks of the river islands of Andrus, Grand, and others, and along streams in the valleys at the western base of Monte Diablo, specifically on Walnut creek and Lafayette creek."

In our investigations, conclusions were reached coinciding with Jepson's, that these were two of the original homes of the northern California black walnut, and a third location was added to the list which appeared to be older than either of the other two. This was a station known locally as Walnut Grove, situated on the east slope close to the top of the first divide east of Napa, near Atlas postoffice. In this locality there exists along the moun-



Native Black Walnut Tree, Moraga Valley, Contra Costa County, on Right of Plate.

(Continued on Page 422.)

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CALIFORNIA WEATHER RECORD.

The following rainfall and temperature record is furnished the PACIFIC RURAL PRESS by the United States Department of Agriculture Weather Bureau, at San Francisco, for the week ending at 5 p.m., Apr. 1, 1913.

Stations.	Rainfall Data.			Temperature Data.	
	Past Week.	Seasonal to Date.	Normal to Date.	Maximum.	Minimum.
Eureka .....	.83	32.23	38.70	56	32
Red Bluff	T	15.54	21.49	78	36
Sacramento	T	6.84	17.04	80	36
San Francisco ..	.01	10.72	19.54	70	42
San Jose .....	.00	5.19	14.68	78	32
Fresno .....	.01	4.85	8.27	82	36
Independence...	.00	3.83	8.16	78	24
San Luis Obispo	.04	7.20	18.12	82	38
Los Angeles .....	.00	12.44	14.02	76	46
San Diego .....	.00	5.71	8.86	68	42

The Week.

The PACIFIC RURAL PRESS household has been getting drearier as the years have sped along. No press and clatter of increasing business has stilled the yearning to hear the prattle of a little tongue and patter of little feet. During the 43 years of its life this journal has welcomed many famishing offspring of other publishers and has merged their existence in its own—but it has never had offspring to keep alive and cause to grow. As no baby journal has come to us by the old-fashioned storkian method nor by the new-fashioned route by parcels post, the publisher, in desperation, has had to go out and buy one in the open market at a good round price in order that his constructive genius might have fuller scope in journalistic training and development. And so it comes about that we have a “li’l bruvver”—the Business Farmer and Irrigationist—who ducks his nut in gleeful acknowledgment of your cordial greeting and acceptance of this, our proud introduction of him to you, ladies and gentlemen. Lest there be imputed to us the common weakness of parents to be blind to the individuality of their offspring as a thing distinct from their own, we desire to clearly state that the Business Farmer is a lusty youngster who has been wriggling in the eyes and squalling in the ears of the California public for several years and has gotten his hands into the pockets of many thousands in all parts of the State. He has surely a good circulation and draws his own blood for it. He will make his own way and live his own life at his birth place in Stockton. He shall print nothing of ours, nor we of his; he will go his way in such growth as public favor will encourage. He will make a square fight with other farm journals of his class without editorial help from us—unless perchance some such competitor should call names or throw stones. In such a case our warning is: “look out for his big brother.”

For the proper training of the Business Farmer, we assign our associate, D. J. Whitney, who becomes editor in chief thereof with all the rights

and privileges of that lofty rank, including the title of “professor,” if he is willing to answer to it. We need not inform our reads that Mr. Whitney is well suited to this undertaking, for they know his keen appetite for significant facts and suggestions, his ability in correlating them, and his clearness of style in setting them forth. Aside from these characteristics of him, which our readers so well know, we may remind them that he was thoroughly trained for this special work at the University of California, that he has been a Californian from birth, and that few know the whole State so well by close observation and experience. He enters upon his charge with energy and enthusiasm, and our advice to the public, regarding the Business Farmer, is: Watch it grow!

And so again the eagle of empire perches upon our ban—“Stop that chatter, child; you must not make a noise while we are trying to write; run out and play!” Drat the brat; he is getting on our nerves already!

Reclothing the Citrus Trees.

We suppose that not more than a hundred thousand orange growers did what we enjoined them to do in our issue of February 22, to wit: get into the centers of your defoliated orange trees and remove surplus, or ill-placed branches while you can see just where they are, and thin out too thick, brushy growth, so that the new growth may have a fair chance. We recall this advice because we are hearing so much about the wonderful burst of new small twigs which is now taking place, and have questions as to whether anything can be done to prevent the trees from becoming shells of dense outside growth with darkness and desolation within. It is, of course, possible to do with more difficulty and expense now what could have been quickly and cheaply done while the tree was bare, and in this way to open the tree a little so that the new growth may have a chance to develop more strongly. The defoliated tree starts new growth at more points than the tree in normal condition, and they will be relatively weaker because of the number of shoots and their mutual interferences—for leaves to be strong must have a chance to see and to breathe. If limited in these powers, the foliage will be too small and the fruit, which will set in extraordinary numbers, will also be small. Theoretically, a lot of small branch-pruning and twig-thinning should be done on all trees which are now breaking growth too thickly, but practically very little of it will be done probably, because it costs so much in time or money. It is likely that nearly all growers will stand by and see the trees grow, and nature will do the best it can by depressing and killing the growth which is in the dark and giving leadership to those which chance to get more light and air. We should do the same thing ourselves if we had many trees and little time or money; therefore we give no general scolding on the subject. We do, however, commend this to every man who is of an inquiring turn of mind: thin out a few trees rationally, both by branch cutting and twig thinning, so as to give the center of the tree a fair degree of light and to prevent the new outside growth from matting itself together. Mark other adjacent trees of same kind and similar size and vigor, with which you can compare your thinned trees as to grade and weight of fruit and growth points after the next crop of fruit is handled. This will not be much trouble or expense and it may yield some wisdom. Of course you will write a report of your conclusions for publication in this journal.

Who Pays for Pillsbury’s Wounds?

In the regular pursuit of his business as an em-

ploye of the State, Mr. Pillsbury has been punched full of holes by certain fierce writers for this journal, who cannot be personally prosecuted for damages because they, too, are working in the public interest. Under these circumstances it might be a question as to who should pay for Mr. Pillsbury’s casualties, if it were not clear that, according to his own philosophy, the employer should pay for everything. This the State thus assures, and if it is not met by increased compensation, on the ground of the extra hazardous character of legislation against the farmers, it is not yet too late to get it into the improved scheme now before the legislature. At any rate, Mr. Pillsbury should be care for, for he has had a rough time of it. We are glad on our own account that the old idea of contributory negligence is dead, because we imagine we might be held guilty in inviting Mr. Pillsbury into the open of our columns where all these people could shoot at him. On the other hand, we are sorry that contributory negligence does not still hold as a principle in compensation because we think Mr. Pillsbury is guilty of that, and therefore, perhaps, the State might get free from obligation to compensate him for the accident he has fortunately survived. Mr. Pillsbury’s contributory negligence consisted in that when he took up his gun for casualty compensation, which certain classes of voters called for, he did not know that the weapon was loaded for farmers, and when he fired it these very desirable citizens began to topple over. Now if he had described the beneficiaries in such a way that only those who deserved this sort of legislation would reap the beneficence thereof, the condition under which he is suffering such sharp impeachment from our readers, would not have arisen. Of course, Mr. Pillsbury may retort that laws are not made against honest men (who enjoy his prescriptions), but against rogues (who do not like them), and that he really gets the ones who ought to be gone after. But we are not going to try to punch him; he has made a manly fight, with all agricultural odds against him, not to speak of the insurance men who are now on the shooting range. At the same time, from the agricultural point of view, we have held from the first that the undertakings for which he undertook to stand should never have been proposed as a public policy.

Plenty of Money for China.

We have no idea of stealing the trade of our old friend, E. F. Adams, as an expounder of finance, nor do we wish any of the economists to think we are poaching of their preserves because we make a remark about the people as their own financial promoters once in a while. With this reservation, we are glad to see the announcement that President Wilson has learned that an American financial syndicate stood ready to furnish the republic of China a short-term loan of about \$10,000,000 and would later negotiate a long-term loan up to \$100,000,000, or whatever should be China’s need. The syndicate has asked for assurances that the United States government would not participate in any way in the negotiations. That is all right as far as it goes, for it does not make the government a party to a private transaction. We hope, however, that it is not connected with another proposition to the effect that the Standard Oil Company has offered China a loan of \$35,000,000 gold in return for the sole right to the exploitation of petroleum in China for a term of years. That would apparently be making a hole for the large cat and trapping the small cat which might try to get through. If we are to have an open door in China all citizens of the United States should have the same chance at it. And this applies to gold or petroleum, or what

not. All these things are related in one way or another to the open door for agriculture in this country, and that is the reason they all interest us.

Honor to Whom Honor.

We made a little mistake in assigning Mr. Stubenrauch to the headship of the Bureau of Plant Industry. That of course belongs to W. A. Taylor, who has been assistant chief for several years, and previously in charge of other important branches of the department and is well known to Californians for his pomological work especially. Our annihilation of Mr. Taylor in rushing Mr. Stubenrauch was an inadvertence. The latter is to have charge of a new organization of the bureau's bunches, of which we have not details, but they are guaranteed to fit the biography we made out for Mr. Stubenrauch, and that is all we care about it at the present moment. When an editor has a biography ready, someone has to be killed to get it in print, as a matter of course, and it does not matter much who gets under the axe.

While we are writing so much in promoting product-selling organizations among producers, we are desirous that all should understand exactly what such organizations are doing and that no one should credit them with achievements of others. For example it is telegraphed from Washington that our consul in Germany has declared: "A great deal has been done in California to increase the high standard of American dried fruits by the Dried Fruit Association of California. Members of this association secure certificates of inspection from qualified inspectors and these certificates are accepted in the German market as satisfactory."

This is a commendable thing and the producers ought to be doing it, but the above record applies to the work of an organization of dealers, as reference to our Directory or Organizations published last week will show. It is good just the same.

Queries and Replies.

Querists must submit full names and addresses.

Two Matters of Moisture.

To the Editor: I have been planning to plant alfalfa on the ranch here, and to do a lot of drain-tiling, and just now I find myself up a tree. One man tells me that the alfalfa roots will surely clog up my drain tiles in a couple of years. Another tells me that the alfalfa roots will not clog the drain tile unless through the drain tile is flowing water at all seasons of the year. I would like to have your advice on this. Of course, during summer months my drain tiling will be perfectly dry.

I keep reading how, in the Eastern country, when the last cultivation of corn takes place, such things as soy beans, cowpeas and Canada peas, etc., are planted in the midst of the ripening corn. Now, can this be done in California? If it cannot, what can be done for an immediate crop rotation?—J. L. Glen Ellen.

If your tiles were "perfectly dry" during the growing time of alfalfa the roots would not waste time by growing into them. But they will not be perfectly dry, and whenever there is more available moisture in the pipe than in the adjacent soil the roots will go after it. It does not require much water to constitute an inducement: probably what would wet a cobweb would attract a root hair, but the speed of filling up will be in proportion to the amount of water available in the pipe.

If you do not stop reading so much wild Eastern stuff you will become an agirculturist and not a farmer. You cannot start those legumes on the land with your maturing upland corn because the corn will have sucked the soil dry and left no moisture, because the corn has to grow

on conserved winter rainfall and not on summer showers. Clean up your corn land as early as you can, plow in the stubble if your soil is not too light already, get in your soy beans and Canada peas so they will start with the first good rains and make a free fall growth. Use them for late fall and early winter pasturage (when the ground is not too wet to be tramped), and plow under all refuse next spring to feed a new corn crop. Cowpeas will not do for this program, for frost will kill them; but vetches will probably give you a better growth than the soy beans and Canada peas. Just which is the best legume has to be locally demonstrated by trying several of them.

Gravel and Hardpan.

To the Editor: I have some land that ordinarily in the summer and fall is about 30 feet to water. It had been used for hay and grain before I got it. I manured it heavily a year or so ago. The soil is about 6 feet to a very nearly pure gravel and there is a clay lying like a hardpan about 3 feet below the surface. In digging, I notice very few angle worms but lots of cut worms. What is the reason? Will a soil underlaid like this with clay sour, and what are the signs of sour land? No water ever lies on top of the ground.—Subscriber, Livermore.

As we understand your statement, you have a hardpan 3 feet below the surface and clear gravel 3 feet below that. You have a hard proposition, for if you break the hardpan you will lose the rainfall through the gravel and perhaps get less from the land than you get now, while the hardpan holds up your scant rainfall where the roots of a winter-growing hay or grain crop can get the full benefit of it. Considering scant rainfall and absence of irrigation, your land must carry a winter-growing and not a summer-growing crop. You have no angle worms because the soil is too dry for them during most of the year. They are very expert judges of moisture. Cut worms are larvae of moths. These grubs feed on root and tops of plants during the moist growing season, and when they become cocoons they like to have the ground dry, for they do not enjoy having mold growing on their backs. Therefore the cut worm enjoys what kills an angle worm. There is no danger of your soil becoming sour; it is too dry. There is more danger of its being alkaline.

Manzanita Mealy-Wings.

To the Editor: I enclose a sample of a scale that kills manzanita bushes by clinging to the leaf as in sample. Can you tell if it is dangerous to fruit trees? Ought it to be eradicated before it gets to the fruit trees?—J. A. B., Paradise.

The specimen which you send shows an aleyrodes or mealy winged fly. The insect is closely related both to the plant lice and to the scale insect and occurs in sufficient numbers to bring the manzanita into distress. It is fortunate, however, that thus far this insect has not been known to take to fruit trees or other cultivated plants, although other species of mealy winged flies do so—one of them being destructive to citrus trees, another to strawberries, etc. So far as known, however, the manzanita species will not give you trouble on cultivated lands.

Killing Badgers.

To the Editor: The ranchers in this neighborhood are troubled a great deal with badgers in the fields. They trample down the crops and dig large holes which are annoying and dangerous to stock. Can you suggest any way to get rid of them?—Oliver Crosby, Modoc county.

If you kill the badgers you will have more ground squirrels, field mice, gophers, etc., for badgers are flesh eaters and wage constant war on these pests. If, however, you are sure you do not

want badgers you can trap them easily. In the PACIFIC RURAL PRESS of June 1, 1912, Director Grinnell, of the University Laboratory of Vertebrate Zoölogy said: "Badgers can be easily trapped with No. 2 or No. 3 steel traps baited with bodies of squirrels or rabbits. They enter steel traps very readily, having none of the suspiciousness of coyotes."

Beware of Black Currants.

To the Editor: I am thinking of planting ten acres of black currants. I know red currants do very well here, at an elevation of 4000 feet, and the place is probably suitable for black currants. It is, as you know, a delicious fruit, and on account of its rarity here should command a good market in California. I have been here 18 months and have not seen one since I arrived. What do you think of it?—T. R., Tehachapi.

We are sorry you asked the last question, because we have to answer truthfully, as usual, and are therefore forced to say that we consider black currants the meanest edible fruit that grows on a bush.

No doubt black currants will grow successfully with you. They will grow in many places where red currents do not succeed, but there is practically no inducement to grow black currants in California beyond your own family requirements. The California markets do not show them because California purchasers have practically no use for them, and any undertaking to develop a market by such planting as you mention would be disappointing. A very small quantity might be sold successfully to residents of English descent who remember their liking for them at home, but experience has shown that even their California-bred children will have nothing to do with them.

Nitrate With Stable Manure.

To the Editor: I am going to plant about 2000 plants of rhubarb. I intend to put some cow and horse manure under the plants as a fertilizer, but I do not think I will have enough for all the plants, so I bought some nitrate of lime, with the intention of mixing the cow and horse manure with the lime nitrate, which I thought would allow me to spread the manure much thinner and I could cover more surface. Now I am not sure but the nitrate of lime will burn the manure if mixed with it, so I ask you for information in regard to it, and how can I apply the nitrate of lime without injury?—F. H., Sebastopol.

You can mix either nitrate of lime or nitrate of soda with the stable manure as you propose; in fact, it is frequently done. These nitrates are neutral salts and do not act on manure as caustic lime or wood ashes would do. They are quite content to keep along without kicking their neighbors. But, of course, the more nitrate you add the more careful you must be about using too much of the mixture, and as for putting manure under any plant, at this time of year particularly, it is dangerous business.

Limitations on Gooseberries.

To the Editor: Will you please explain how it is that gooseberries are not grown more in California? I understand that in Europe, Canada, New England and many parts of the East the gooseberry is a staple product, even more than the strawberry is in California. Is there any reason, climatic or other, why the gooseberry should not be as successfully grown in California as elsewhere?—L. R., San Francisco.

There are two reasons. First, the gooseberry does not like interior valleys, although with proper protection from mildew or by growing resistant varieties, good fruit can be had in coast or mountain valleys. Second, practically no one cares for a ripe gooseberry in a country where so many other fruits are grown, and the demand is for green gooseberries for pies and sauce, and that is very easily oversupplied.

Potash in Soils.

[By OUR ASSOCIATE EDITOR.]

As with lime, we all have more or less acquaintance with potash, not as much acquaintance as with lime, but some, at least by name. Our grandmothers used potash to make soap, getting that some potash in a round about way from wood ashes. Likewise now fruit growers may use it, or caustic soda, which is about as near the same thing as well can be, for dipping prunes or in spray mixture to take the moss off trees in the winter, in making emulsions with distillate, and so on.

It is also a very common element in nature, just as is lime. Our granite mountains have potash as one of the important materials in their composition, so that granite soil contains lots of potash. Glass itself may contain lots of potash, in a somewhat similar form as it occurs in granite, and as a matter of fact all common glass contains good amounts of either soda or potash. Potash also is one of the important soil elements, which goes without saying, since it is a fertilizer, is contained in plants in abundance, and, lastly, fair amounts wash out of the soil into the ocean, so that it is an important part of sea water. In fact most of the potash sold as fertilizer was once in the ocean or in some inland sea.

Peculiar Features.—There are some peculiar things about potash chemically that will help to understand its use as a fertilizer. Like soda, compounds of potash with nearly every common substance will dissolve very freely in water, more freely than any other common element, much more freely than lime, some common compounds of which will dissolve only to a very small extent in water. Yet the funny thing about it is that when water washes freely through soil it quickly dissolves and washes out most of the free lime, leaving the soil very deficient in that substance, and yet may leave a good proportion of the potash in the soil, enough to fully serve many crops. That means that in humid soils potash is much less likely to be deficient than lime, in spite of the fact that potash ordinarily dissolves much more freely in water than does lime.

The second important point about potash in this connection is that potash dissolves so readily in water that the roots can get it readily when it is applied as a fertilizer. Some of the compounds of potash in the soil resemble granite in composition and are very hard to make available for the roots. Yet the potash applied artificially to the soil acts finely in (1) refusing to wash out quickly, and (2) in staying in a form where the roots can get it.

It is thus much more economical than either nitrogen or phosphate fertilizers, for nitrogen fertilizers of certain types are easily washed out of the soil, and nitrogen of all types is easily spoiled so as to pass off into the atmosphere. Phosphoric acid and phosphorus compounds generally have the custom of hanging to the soil so closely that they, like potash, do not wash out, but unlike potash, hang to the soil so tightly that the roots can get but a moderate part of them. It is true that there is some loss to the potash through clinging tightly to the soil, and some may wash out, but generally speaking, potash has the admirable character of staying in the soil and remaining in a form that is available for the plants.

Its condition in the soils is quite largely, that is, when in favorable condition for plant action, in a combination of jelly-like matter, resembling somewhat chemically water glass, only water glass contains soda, not potash, and potash would not make a water glass worth the name.

In the Deep Blue Sea.—This characteristic of potash in dissolving very easily in water and yet washing out very little in water makes its relation much different in the ocean than the relation of soda, which in nearly every way resembles potash as closely as one element could resemble another.

The quantity of soda in nature is about the same as potash, they both come naturally in granite, both are found in soils, soda also is taken more or less into plants. Yet in the weathering of granite and the making of soil the soda easily

washes out into the streams and into the rivers, down to the ocean, while the potash clings to the soil. Thus, although similar in nature and original location, soda compounds are the abundant thing in salt water, while potash salts are even less in quantity than magnesia salts in sea water and away behind soda compounds, mainly sodium chloride or common salt.

Yet the potash that gets into the ocean is not wasted, it stays dissolved in water to the bitter end, and nearly all of our potash fertilizer comes in fact from one big inland sea, whose remains are found in Germany.

Sources of Potash.—Originally the main source of potash was in wood ashes, and with the growth of modern civilization and the increasing demand for potash it seemed that the demand for potash in manufacture would deplete our soils of this element, or leave none for fertilizer. Then the great salt deposits in Germany came to the rescue.

Common salt dissolves very freely in water, but potash dissolves much more freely. When this sea dried down until little water was left the potash hung on to what was left until the common salt had to give up and settle out, then when the water all dried out it was the potash salts that had the last use of it and remained on top of the common salt and the other soda compounds.

As long as common salt alone was wanted, that thick layer of potash compounds was a nuisance, but when it was seen that it was a valuable source of commercial potash it immediately became the most valuable part of the great deposits, and now wood ashes have lost their importance, for all of the civilized world uses German potash, and civilization is so far advanced that even this potash is in the hands of a trust, which is in turn well controlled by the German government.

There is periodically lots of talk of great potash deposits in California and Nevada deserts, but for various reasons these deposits are of no value for fertilizer sources, nor will they be until better methods of working them are found. The great kelp beds could compete with German potash if prices required, and even now are used to some extent as fertilizer, though, for nitrogen and humus as well as potash.

In Plants and Animals.—Potash occupies a very different relation to plant and animal life than do nitrogen and phosphoric acid. Nitrogen is an important compound in the actual building up of the tissue of all animal life and the higher organized vegetable tissues. Phosphorus compounds are largely in seeds, fruits and reproductive animal parts of plants, are in bone, brain, nerves and muscles of animal life. Potash occupies an unimportant part of animal life and is mainly engaged in making good growth in plants. Its main action is in the green matter of plants in taking in and digesting food from the air.

Taken into the digestive apparatus of animals, it largely passes through the system without being absorbed in special quantities into the system. A very big proportion goes out through the kidneys, and that is why the urine of animals should always be saved and made a part of the manure.

And yet in the human or animal system it has one very important function, a giver of health, a tonic. The instinctive craving of animals for salt is partly a call by nature for potash salts. Those who read our live stock queries will notice frequent statements by Dr. Creely that depraved appetite of animals cannot be filled by providing salt alone. Potash compounds of the right sort would help to fill this craving, to keep it from developing. In human conduct it is those foods, like berries and fruits that contain much potash, that are especially health giving, it is largely the potash salts therein that are so valuable.

And this health giving quality is active in plant nutrition. "Nitrogen for growth, phosphorus for fruit and potash for quality." If fine fruit, sweet fruit, is needed, potash is put on, and it is a very common practice in citrus groves to see that plenty of potash is put on even if the California soils as a rule are rich enough in potash to let actual growth and tonnage be good for years running. While it is true that California soils nor-

mally are rich in potash it is always worth trying to see if the addition of some potash will not greatly aid growth, and if not needed for growth, if it will not greatly aid in the quality of the crop.

How It Comes.—There need be little said about the forms of potash in fertilizer, as in California most of it comes as the sulphate, that is, combined with sulphuric acid. Back in Germany, in its natural state it is mixed with large amounts of common salt, and the potash compound therein is the same as common salt, with the potash element taking the place of the soda element.

This natural mixture in a few places may be used as a fertilizer, but should never, or rarely, be so used in California. In the first place, the addition of common salt to soil is not good, and in the second place, the chlorine joined with potash in this form is not good. Likewise it is not nearly so concentrated as the sulphate and the cost of the sulphate is so very little more that the advantages of using the better form outweigh all advantages of price or otherwise.

Although potash is generally abundant in most normal soils of California, it is very likely to be lacking in tule or peat soils and may well be added there for trial, at least when yields begin to diminish. It also may well be added to alfalfa when yields fall off there, especially in light soil; heavy soil is not so likely to need it; for fruit it may improve the quality and for cereals the yield. Like all fertilizing elements without exception, the need comes rarely except when a lack of some kind develops in the yield, and a trial is the only real proof of use or uselessness.

As compared with the other elements, potash has these advantages: that it is quite concentrated, that is, has a high percentage of gross weight in the genuine article, is very largely available, and neither lost by washing out or hanging too close to the soil particles, and it is further inexpensive.

GETTING RID OF NETTLES.

To the Editor: Will you kindly tell me how I can get rid of nettles in my orchard, as they often about smother the vetch.

Also, can you tell me why my Satsuma plums do not bear full? The trees are seven years old and have made a fine growth and have invariably bloomed very heavily, but only about one-fourth of a crop has set.—S. S. H., Santa Ana.

We can advise nothing but clean summer cultivation; treating them as you would morning glory, by constant weed cutting—not allowing them to make any leaves or show green above ground. This will kill out the roots and clean the ground so that the fall-sown vetches will get the upper hand of the few which survive.

Japanese plums are usually good bearers in southern California, except in places where the bloom comes in the frost. Possibly they are making too much wood growth owing to moisture and richness of the soil. In that case they ought to bear better as the trees get older.

ORCHARD ON A POULTRY BASIS.

To the Editor: I have been reading about "frosted citrus groves that can be saved by treatment," but the writer appears to solve the problem for those who have older groves. Ours was put out last spring. It was a fine grove last fall, having made a good growth, and we had lost but two trees that had accidentally been broken off. I have been removing the wrappings and find only half of them alive above the bud. Some of these are putting out new growth, but most of them will have to be cut back badly, and we propose to have the rest budded. After our experience of last winter, I believe some hardier fruit would be safer. Would you advise budding to quince? You see we must have an income as soon as possible, for we mortgaged our place to get our trees. I am raising a lot of young chicks and we will raise corn enough to feed them. I am not able to work for others, as some pioneers do, for I came to this State for my health.—Beginner, Tulare county.

It is not possible to graft or bud the quince on the orange. The best thing to do with your trees would be to bud into the new shoots when the growth is killed below the bud. Your experience is certainly very trying. The only comfort in the situation is that, judging by past experience,

it may be half a century before another hard freezing will occur. Even if quinees would grow on orange trees they would not be profitable because they are not worth shipping long distances owing to the small demand. It is fortunate that you have your poultry interests. Well kept poultry

has helped many people over hard places, and this, we trust, will be your experience. You are, however, seriously handicapped by not knowing much about fruit growing and by inability to work for others. Still, people have carried such handicaps successfully.

High Class Live Stock Products.

[Written for the PACIFIC RURAL PRESS by
W. M. CARRUTHERS.]

The bottom lands along the Sacramento river have long been known for their fertility. Under a thorough system of reclamation they have been known to produce enormous crops of vegetables, grains and grasses. Danger of the back levees of these reclaimed lands breaking, when the flood season is on, has caused many anxious moments for the men who are producing pure-bred stuff of the very best kind on these bottom lands.

Today many of these back levees are faced with concrete and are supposed to stand any flood which may arise. Many others are built high and wide, relieving a good deal of the danger of these lands being flooded. Ten years ago it was a common sight to see some of the best pure-bred stock in California having nothing but the levee of the Sacramento river to stand on, as the river was on one side and the back-waters had swept everything before it until it reached the other side.

These animals would sometimes be there for two weeks at a time, being drenched to the skin with cold rain and standing knee deep in mud. The only feed they could get was wet hay, and their drink was the only waters of the Sacramento river. With these conditions prevailing, enormous losses usually occur, making the business very discouraging, as, under the best conditions, this work was a hard game in this State fifteen years ago.

It was for this cause T. S. Glide moved his part of the pure-bred stock which he inherited from his father, the late J. H. Glide, to his 640-acre farm lying even distance between Dixon, Winters, and Davis.

This farm comprises 640 acres of soil in one of the most fertile sections in the State of California. It is bounded on the south by Putah creek, which is fed from the mountains and has running water in it all the year, which is used for irrigation and stock-watering purposes. When Mr. Glide acquired this property it was operated exclusively as a grain ranch, poorly fenced, and no buildings on it. The building up of a great stock farm of pure-bred Short-horn cattle, Shropshire, and Rambouillet sheep is a great undertaking, and unless a man has an inherent love for live stock he had better leave this work alone. If a man is possessed of ability and love for this kind of work, the first great essential toward his success is knowing that his farm is fertile and productive.

Hillcrest the New Name.—It was for this reason that this young breeder purchased the farm which is now known as Hillcrest Stock Farm and started out to make it the pride of the whole community. Near the center of this property is a large gravel knoll, where now is erected a large modern dwelling-house with all city conveniences, and many practical and commodious barns for the use and care of pure-bred stock. Every building on this farm has a cement foundation, and all out-buildings have cement floors. Every building is lighted with electricity, and the cost is less than \$2 per month, thus doing away with the use of lanterns, which has set many buildings on fire and put their owner ten years back in his life's work.

How Labor Is Housed and Used.—The working-men's quarters on this place cost the owner a good round sum, but it has paid for itself many times since it was erected. Every room has running water in it, with a stationary washbowl, and in the building is a first-class bathroom. A large water-tank being attached to a stove in one of the rooms can be heated for bath purposes in a short time when it is wanted. The owner told the writer that all his men stay with him, and he has made but few changes in the last four years. The cause is laid to the comfortable quarters which

the men have on this ranch.

A general rotation of crops is being practiced, and the ultimate aim of this breeder is to have 300 acres in alfalfa, which he claims is all he will ever need for the running of this place. His purpose is to cut this alfalfa twice, from which it is expected to get 1200 tons, and the balance of the year to run stock on the alfalfa meadows. The labor question is causing this method of handling the alfalfa crop, as at the time of the year when the first two cuttings are being stacked labor is usually plentiful. After this time the best labor drifts to the grain harvest fields, and the earing for the late alfalfa crop is usually a hard matter to solve. The other 300 acres of this farm will be handled under a rotation system of crops such as beets, corn, and small grain. A silo will be built on this place this summer, large enough to take care of half the corn crop; the other half of the crop being allowed to mature which was used during the last year for feeding hogs and steers for the market.

The Irrigation Safeguard.—This farm is all under the canal and can all be irrigated. The first year on this farm demonstrated to Mr. Glide that some other method of irrigation must be devised if the crops on this place were to be successfully and profitably grown. Usually when one farmer wants water for irrigation purposes from the canal, all the other farmers want it at the same time, so some must consequently suffer.

Mr. Glide was one of these farmers who suffered the first year, and it was this that ultimately caused him to build the large irrigation plant which is now being successfully operated on his ranch. At the cost of \$3000, he established a 12-inch pump on Putah creek, using a 30-horse-power engine to lift the water to the land, using electricity for power. Last year water for irrigation was a very scarce article in our State. Most farmers got only one and some of them only two irrigations during the whole year. The same year this farm was irrigated four times with this private plant, and Mr. Glide told the writer that it more than paid for itself in this year's work alone.

The Live Stock.—Short-horns, Shropshires, and Rambouillets are the three great breeds of live stock which are maintained and being developed on this farm. The pure-bred herd of Short-horns on this ranch is too well known to our readers to make many comments on it. Nevertheless, the two great herd bulls King Lancaster and Knights Perfection are doing wonderful work for the breed's future, and if the present plans are carried out, some of the young things sired by these great bulls will be seen at the California State Fair this fall. In addition to these young things, Mr. Glide has recently purchased the two-year-old heifer, Flower Girl 14th, one of the good daughters of Ring Master and out of a March Knight cow. The Ring Master and March Knight cross stands out very prominent in this young heifer, and after her show career is over she ought to make a valuable cow to put in the breeding herd. She is in calf to Snow Ball, one of the best bulls in the Middle West, and if predictions come true, his record in the show ring will be materially increased before the next fall's shows are over.

Another heifer which he has just purchased and will be seen in the yearling class at the fairs this fall is Cheerful 9th, a full sister to Cheerful 8th, the champion cow at the Missouri State Fair last year. This young heifer is sired by Juno Clipper, the herd bull which made the Dunwoody herd of Short-horns of Minnesota famous, and is considered by good judges to be a better heifer than her sister.

Along with these two heifers has come to this farm a few more good cows which will make a valuable addition to the many good matrons which are now there.

Mayflower Cardinal, the young bull which came with this Eastern shipment, may be retained in this herd for future use. It is just possible that he may be seen in the show ring this fall. He is royally bred, being of great showyard type, a son of Clipper's Choice, who has for sire the great Lord Mistletoe, bred by William Duthie, Collynie, Scotland.

The Steers.—Several years ago Mr. Glide's father established a pure-bred herd of Short-horns which he maintained under range conditions, at which time breeders in California did not care to pay the price for a high-class bred bull. Under direction of J. H. Glide, Sr., this herd ran up to nearly a thousand cows, but since it came into the hands of his son it has been reduced to 400, he keeping nothing but the very best of cows to raise bulls from which to supply the market. He is using such bulls as King Lancaster, Knights Perfection, and the best sons of King Edward, so next year this ranch will have for sale some remarkably good young bulls, unregistered but superior to a good many of our registered bulls. Anyone doubting this statement can go now and see the carload of steers just ready for the market, showing the fruits of these great bulls. This car of steers has been fed and developed, and shows what good breeding and feeding will do. They are two-year-olds weighing close to 1300 pounds and are worth 7½ cents on the hoof at this farm. They are a finished product and would bring between 9 and 10 cents on the Chicago market. They are perhaps the best fed and finished car of steers that has ever been handled by a breeder in this State, demonstrating that good beef can be fed and raised on our high-priced land. These steers have been fed for six months on a mixture of wheat, barley and corn, with alfalfa hay as roughage—all grain and hay being raised on the place.

The Hogs.—At present a carload of hogs is being finished on this farm for the market on grains raised on the ranch. These hogs never had a hungry day, being fed corn with their mother all the time. It is the policy of the management of this ranch to keep the pigs growing from the day they are dropped, and under this practice, Mr. Glide says, his hogs return him good profits.

This farm is all built of hog-tight fence, and while the sows are raising the litters they are allowed to roam at large over the alfalfa fields. They can always be found at home at night, and in the morning, when they are always fed a good liberal ration of corn. No pure-bred hogs are raised on this place for the pure-bred market: everything is raised from the commercial standpoint and shipped whenever ready for the market, not when the market is ready for them, as the owner of this farm thinks "there is a time to sell, and at that time one should always sell. If this motive is not strictly adhered to, later this stuff when sold will be a loss, no matter what price you get."

The Sheep.—The sheep business on this ranch is the largest and most profitable undertaking which has been carried on so far. A small flock of registered Shropshire ewes, which were imported from England several years ago, are maintained here to produce rams for use in his large range flock. This large flock is now producing rams for the California trade, and the lot to be sold this year are a very uniform bunch. These rams ought to find a quick market when the season opens, as they have been raised under general range conditions and are well fitted for future work on the California grade flocks. Nothing but the best of rams and ewes are kept from this flock for breeding purposes. All others are fed grain during the winter and are made a finished product for the block. Under these conditions the best price is obtained.

The Rambouillet flock on this ranch is run in a much similar way to the Shropshires. As the Glide Rambouillets are known far and near, no comments are necessary about them furthermore than to say that the rams for this year's trade are a lot of big growthy fellows, well covered with wool, and ought to find a ready sale.

A particular charm of Hillcrest Stock Farm is the environment of the farm home, which has been laid out and planted with great taste and liberality. The farm has been also dotted with shade trees which in a few years will produce grateful shade and fine landscape effects.

There's Money in the Air

It is yours up to the sky if you will take it.

Do you know that every ton of alfalfa, beans, peas, etc., you grow takes from 25 to 80 pounds of nitrogen from the soil?

How much of this valuable element do you replace?

Many of your neighbors are taking dollars from the air by inoculating their seed with

FARMOGERM

This is a practical preparation of nitrogen gathering bacteria, easily applied to the seed before planting, at an expense of less than \$2.00 per acre. We can refer you to many users who have been rewarded with 200 PER CENT CROPS. It is a permanent fertilizer where the same crop is repeated.

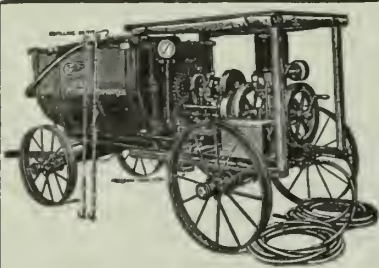
Home Garden Size 50 cts.

Combination culture good for Sweet Peas and Garden Peas and Beans.

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DO THE WORK QUICKLY, THOROUGHLY AND PERFECTLY AT A MINIMUM OF COST

Three outfits, differing chiefly in capacity. All built for heavy pressure. The various parts are readily accessible, and when worn can be easily and cheaply replaced.

The Bean Pressure Regulator does away with all relief valve troubles, saves from a fourth to a third the gasoline, and wear and tear on engine and pump.

All Bean Power Sprayers have porcelain-lined cylinders; bell metal ball valves that cannot corrode, rust, or clog; direct machine-cut gear connection; underneath suction; iron well in tank, so that tank can be easily cleaned and drained; and steel frames, instead of wood. Power outfits from \$137.50 up.

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THE BEST ON THE MARKET

All Fancy strains of Vegetable, Flower or Tree Seeds.

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6 pkts. of our Famous fancy Asters, named, best on the American market, 50c.
¼ lb. Lettuce, our fancy Los Angeles Market variety, 25c.

MORRIS & SNOW SEED CO.,
425 S. Main St., Los Angeles, Cal.

THE CALIFORNIA BLACK WALNUT

(Continued From Page 417.)

tain side, near the top, a series of small ponds or marshes, each consisting of a cuplike depression or terrace in the hillside, about the edges of which discharge several springs. Each of these terraces no doubt contained at one time a small body of water, but in the course of time they filled up with vegetation and soil into swamps and mud-holes. There are some eight or ten of these formations scattered along the hillside within a mile or so, the largest, the northernmost one, having an area of possibly three or four acres. The whole hillside throughout this locality is covered with a dense growth of native trees characteristic of the region, particularly the Oregon maple and black oak, with California laurels and madrones in the deeper canyons. The soil is deep and moist upon this slope, and all vegetation is very luxuriant. On the largest and northernmost of the little basins mentioned there stand, near the north end, three large black walnut trees, one of which appears to be by far the oldest walnut tree in the State. This consists really of a group of seven good-sized trees, all rising from a common base, which evidently are sprouts or second growth from the stump of a still older tree. The individual stems in this group form very tall, clean trunks, as upright and treelike in form as the best type of the Eastern walnut. The other two trees in this group have single trunks at the base, growing up with clean, erect trunks and lofty, spreading tops. They resemble the first-mentioned tree in most respects, save that one of them has deeply furrowed bark much resembling that of *Juglans nigra*. All of these trees bear medium-sized, almost perfectly smooth nuts, similar to those of the northern California black walnut trees found growing about the various towns mentioned above. It is evident at first sight that these are very old and on the decline. They are gradually dying all over the tops, and large limbs are breaking off and falling to the ground.

(To be Continued.)

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That will Grow.
That are True to Label.
That are Free From Disease.

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Red Gravenstein

Apple Trees for Fall Delivery.

See what Prof. E. H. Van Deman says of this wonderful new apple:

"For two years past I have seen the Red Gravenstein Apple at some of the fruit fairs in the West, and among them the National Apple Show at Spokane. I have also eaten it, and it is a true Gravenstein in every particular except color. In this respect it far surpasses the old variety, because it is almost solid red and exceedingly attractive. I think this difference will cause it to sell even better than the common Gravenstein, from which it is a bud-sport."

Hanford Nurseries

CLARKSTON, WASH.

Drawer 6. AGENTS WANTED.

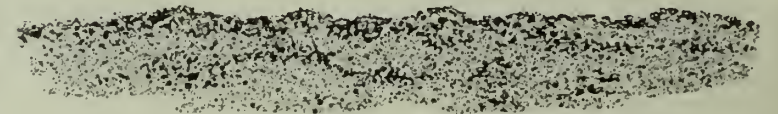
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WHAT WERE LAST YEAR'S PROFITS?

Did your neighbors have bigger and better crops than you? Just how much did your ground produce for you. If your annual ground yield didn't come up to your expectations, have you found the reason for the deficiency? Ever consider the fertilizing end of your business?

Your horses can do a better day's work on a feed of grain than they can on a diet of alfalfa. What kind of a food do you give your soil?

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Hawferco Fertilizers

they're the most substantial and scientifically prepared earth food ever brought to the attention of farmers. They put strength and ginger into the soil and make it "stand up" to the hardest strain.

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PERFORATED TREE PROTECTORS

TO CITRUS GROWERS, if the recent frost has caused the leaves on your young trees to drop so they will not protect the body from the hot sun, which will spoil a good many of them if not protected, let us supply you with wraps for them. Others are going to do it, why not you? You can't afford to let your trees go unprotected when for about a cent each you save all of them.

Also a word to you who are planting deciduous trees.

Last season we sold over a million Perforators to deciduous planters, and they find it was money well spent. You know that rabbits, hot sun, sand storms, raking of bark in cultivation, etc., always causes a loss that will many times more than pay for the Perforators to protect your whole planting. Let us sell you Perforators. We have the only Perforated ones made. Write for sample and price.

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Is sold on our positive guarantee that it will dig faster in all kinds of ground than any other post hole tool, auger or digger, and twice as fast in very heavy clay, gumbo, adobe or hardpan. If your dealer does not sell the Fenn, WRITE us for descriptive matter and prices.

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One customer writes: "Fruit cut by your machine more evenly divided, and smoother after being dried, than that cut by hand." Another says: "We have six tons of dried fruit testifying to efficiency of your machine," etc. Fruit Growers! Avoid labor problems with resulting vexation and loss and save money by writing us now before rush begins.

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EASY TO MIX
STAYS IN SUSPENSION
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Send for booklet and prices.
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FREE! THIS HELPFUL BOOK HINTS on Pruning

A practical booklet on up-to-date methods and principles of pruning all kinds of orchard trees, by L. H. Day, Horticultural Expert.

SENT ON REQUEST To Any Orchardist who is a member of a Fruit Growers' Ass'n., and mentions name of same. Sent to others for cost of mailing, 4 cents.

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Manufacturers of the "STAR ORCHARD LADDER"
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OUTLOOK FOR THE SEASON.

Bad frosts in mid winter, very scant rains over most of the State, a good rain a little time ago, and rather serious frosts after it, have all left crops in an uncertain condition. To get as fair an estimate of the conditions as is possible, we secured reports from correspondents through northern and central California, whose reports are about as follows:

SACRAMENTO VALLEY CONDITIONS.—Through the Sacramento valley the ground is pretty dry, getting better by a good margin as one approaches the upper end and worse toward the southern part, except where irrigation has been practiced. Our correspondent writes from Butte county and says:

"I found that the almonds have been most badly hurt, and it is estimated that there will not be more than a quarter of a crop. The peaches and prunes were not so badly caught. Some claim that they will still have a fair crop, while others say that theirs will be very light. They were hurt especially by the frosts of the last three or four days (the latter third of March). Quite a number of the farmers have been smudging around here and hope to have the bigger portion of theirs.

"The orange and lemon trees were in most places badly hurt, but most of the growers think that there will be a fair crop next year. The people in the Wyandotte section were especially fortunate. I went out there in some of the orange groves and picked a few oranges from the trees which were not frost bitten a particle.

"Indications are favorable for a good
(Continued on Page 426.)



TREES BUGGY?

There's no reason why they should be if you use

Yel-Ros

It is the most penetrating spray yet given the orchardist. Use it for thrips and kill them in the bud. See that your next spray is an

Universal Orchard Spray

Send 25 cents for our 1913 Spraying Calendar. Very valuable and interesting. Address INSECTICIDE DEPARTMENT PAUL R. JONES, Entomologist BALFOUR, GUTHRIE & CO. 350 California Street San Francisco.

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DEMING THE WORLD'S BEST PUMPS

An ideal high pressure power sprayer, with utility engine, agitator, 200-gal. solution tank, hose, nozzles. Complete, ready for operation.

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best in design, workmanship and materials. Purchase price cheerfully refunded if not satisfactory or found as represented.

SAVE

on your first cost and half your marketing expense by spraying your trees with a DEMING.

NORMAN B. MILLER
503 Market St., San Francisco.
AGENTS WANTED.

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Now is the Time to Plant FOR THE VEGETABLE GARDEN


Morse's Golden Cream Sweet Corn, Prolific Black Wax Beans, Kentucky Wonder Pole Beans, Early Bush (Summer) Squash, Rocky Ford Muskmelon, Tom Watson Watermelon.

FOR THE FLOWER GARDEN

Large Flowering Branching Asters, Camellia Flowered Double Balsams, Climbing Variegated Nasturtiums, Double Chrysanthemum Flowered Sunflower, Rose Bushes.

The above are all described in MORSE'S GARDEN GUIDE FOR 1913. Sent free of charge.

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Notice The Rivets?

The rivets on "Western" Surface Irrigation Pipe are what make it the strongest and most dependable irrigation pipe on the market to-day.

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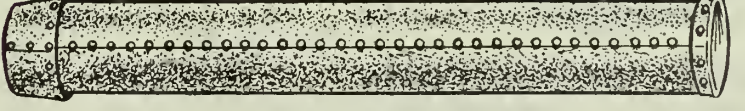
Surface Irrigation Pipe will save you big money on your pipe bills because the rivets and soldered seam greatly minimize the possibility of leakage.

Write us To-day for full information about this wonderful and economical pipe. It will pay you.

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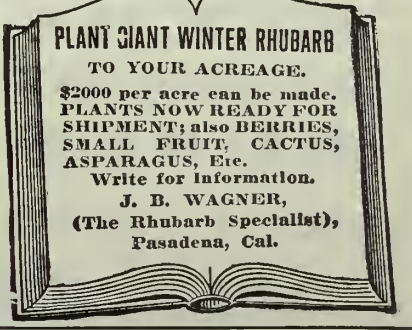
In solid lengths 10 ft. 6 in.

FRUIT TREE BARGAINS

Nonpareil, Ne Plus Ultra, I.X.L., Drakes Seedlings, Texas Prolific, Hungarian, Silvers, Imperial, Goldendrop, Bartletts, Cherries, Walnuts, and Figs.

Special prices on application.
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\$2000 per acre can be made. PLANTS NOW READY FOR SHIPMENT; also BERRIES, SMALL FRUIT, CACTUS, ASPARAGUS, Etc.

Write for information.
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More Trouble for Mr. Pillsbury.

To the Editor: I have read in the Press of the 22nd inst. with astonishment, the three and one-half columns of explanations and denials which Mr. Pillsbury says he has been compelled to make on account of my misstatements and careless in reporting his Lodi talk of February 22nd.

If any errors have crept into this report, I am willing to accept corrections based on the truth, and to apologize for any injustice done. Mr. Pillsbury charges that the writer hereof is too crooked to "hear straight," "see straight," or "think straight," and by inference, incapable of weighing evidence impartially.

"Oh, wad some power the giftie gi'e us

To see oursel's as others see us!"

It is a matter of no consequence what Mr. Pillsbury thinks of my capabilities, and at the same time I am not concerned with his personal attributes. A man who hears, thinks, and see crookedly, generally puts up poor and shift argument, abuses his opponents, and may be easily recognized. Mr. Pillsbury is urging the legislature of California to enact legislation which will be unjust towards farmers and place an enormous burden upon the agricultural interests of the State. His arguments put forward in support of these measures are in the nature of public acts and open to criticism. These I propose to discuss without fear or favor. I am willing to assume, for the sake of argument, that he is actuated by good motives in putting forward his Senate bill 905, and might go a little further and suppose it is with a sincere and thoughtful consideration of the needs of the State and the good of humanity that he provided in this bill for the perpetuation of himself in office with a salary sufficient to keep any above the "poverty line," and

with vested police and judicial powers greater than ever conferred on a commission in this State.

As to the misstatements: The most charitable view possible is that a speaker laboring under the excitement of debate may not remember all that he said as well as the man with notebook and pencil. The difference between what Mr. Pillsbury said and what he says he said is so slight as to be of little importance. We left out the word temperance in one of his sentences, which was an error. He complains of misrepresentation in the fact that some of the figures reported were from ten to twenty dollars, more or less, than the right amounts. These were written down as he gave them, and the slight discrepancy probably is to be accounted for by the fact that, as he says, his actuary revised some of his figures. None of the figures dealt with can be said to be exact, but are approximations—sufficiently correct for the purpose—and the slight difference in the statement amounts to nothing.

Taking the figures as they have since been given out by the Industrial Accident Board in the Lodi Sentinel, in Contribution No. 5, the conclusions of this Board as to the effect of this legislation on the farmer are not logically supported, as I will endeavor to show.

On the 17th of this month the writer appeared before the Senate Committee on Labor and Capital, and debated these issues with the Industrial Accident Board, and had this to say:

"Mr. Pillsbury, I wish to call your attention to the error in your conclusions as to the cost of compensation insurance to the farmers under Senate bill No. 905, and to correct your understanding of that phase of the subject. You say there are 93,420 farms in California valued at \$1,532,807,624.


Average value of the farms....\$16,407.70
Annual cost of labor per farm.. 934.20
Rental value at 5% without compensation 820.38
Rental value with compensation 811.44
Value of farm with compensation 16,228.80
Depreciation of the farm..... 178.90

"Admitting that your figures are correct as to values, this elucidation is capable of still further analysis. Let us sell this average farm for \$16,228.80 and invest in good vineyard property. If depreciation has not already resulted, you may get 50 acres of good vines capable of an output of 15,000 crates of grapes. Your annual payroll will be \$3350.00, a 2% (it is questionable whether it will be made any less)—\$67.00—direct compensation tax. You will use 15,000 box shooks at 10c, three-quarters of which is labor value. These prices are governed by the lumber mills of Washington and Oregon, where the compensation tax for logging is established by statute at 5% of payroll. Here is an indirect contribution by the horticulturist of \$56.25. Sundry investments in machinery and betterments may add \$40.00 more, and we have a total of \$163.25 annual compensation tax on an average farm investment of \$16,228.80. This is approximately 1% on the original investment, and amounts on a 5% basis to a depreciation of 20%. But suppose protection can be had at 1%, the amount will be \$33.50 less and the farm will now be worth, in the same ratio, \$13,812.00.

This may be put in another way. This grower's tax will figure to at least \$8 per car of his output. California growers ship 65,000 cars of fruit, selling generally at auction. The total annual contribution on this will be \$520,000.00, which represents a depreciation of \$10,400,000."

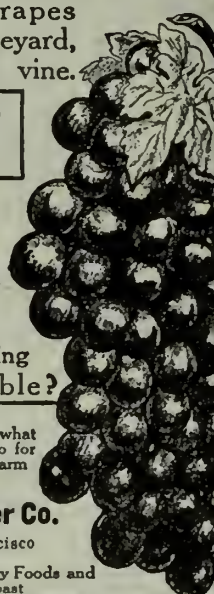
SEE THE DIFFERENCE

These two bunches of grapes were picked in the same vineyard, both from the same kind of vine.



THIS VINE IS STARVING TO DEATH

On the other hand



THIS VINE HAS BEEN FERTILIZED

Is there any need of our asking Which is the more profitable?

Send for our FREE BOOKS of facts telling what our fertilizers are doing, and what they will do for you in your orchard, your vineyard, or your farm

The Pacific Guano & Fertilizer Co.
607 Alaska Commercial Bldg., San Francisco
Largest manufacturers of Fertilizers, Poultry Foods and Bone Charcoal on the Pacific Coast

CHOICE FRUIT TREES

BY THE OLD AND RELIABLE SMYRNA PARK NURSERIES

Apple, Cherry, Peach, Pear, Apricots, and Figs a Specialty.

VERY SELECT TREES

BE SURE AND WRITE US BEFORE ORDERING YOUR FUTURE SUPPLY OF TREES

SMYRNA PARK NURSERIES

Ceres, California
Campin & Moffet, Props.

TREES

Our trees are pedigreed and the best that care can produce. There is already a shortage in many of the best standard varieties. While we are selling fast, yet our assortment is still complete. Write us now concerning your wants for this season.



The Silva-Bergtholdt Co.
P. O. BOX 177 NEWCASTLE, CAL.

SEEDS

of superior quality. A large assortment of choice garden, flower, tree and palm seeds.

ROSES

Over sixty choice varieties.

FRUIT TREES

All the leading sorts.
Catalogue mailed free on application.

THEODORE PAYNE,

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100,000 Sour Orange Seed-bed Trees

Navels—Valencias—Tangerines

SOUTHLAND NURSERIES,
R. D. 1, Pasadena and Terra Bella,
Tulare Co., Cal.
F. H. DISBROW, Prop.

The Fresno Nursery Co. Inc.

...HONEST NURSERY STOCK...

Fruit Trees Grape Vines Fig Trees

We are the Largest growers of this stock on the Pacific Coast. We grow a complete stock of

PEACH, ALMOND, PRUNE, PLUM, APRICOT, APPLE, PEAR TREES.

Grape Vines—All Varieties.

40-page Catalog and Price List free.
Send us list of wants, for quotations.

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F. H. Wilson, Pres.
C. B. Harkness, V. Pres.
Chas. A. Chambers, Secy.
The Reliable Three.

P. O. Box 615,
Fresno, Cal.

ARE YOU INTERESTED IN APPLE PLANTING? IF SO, LOOK OVER THIS LIST OF VARIETIES:

Gravenstein
Jonathan
N. Y. Pippin
Winter Banana
Yellow Bellefleur
Yellow Transparent
White Astrachan

Red Astrachan
Arkansas Black
Red June
W. W. Pearmain
Wagner
Baldwin
Stayman Winesap

Rome Beauty
Alexander
Spitzenberg
Ben Davis
Black Ben
Delicious
Missouri Pippin

A post card will bring you our price list and descriptive Catalogue. Your order will bring you these trees, freight prepaid, and if given proper care and cultivation, they will bring you an income that will bring you to the sunny side of Easy Street.

CHICO NURSERY CO., Chico, Cal.

HORSE MANURE AS A FERTILIZER

Highly recommended by the U. S. Department of Agriculture, Washington, D. C. Write to them and ask for Farmers' Bulletin No. 192, "Barnyard Manure." When you want manure, write us and we will quote you.

PACIFIC MANURE & FERTILIZER CO.,
429 Davis St., San Francisco, Cal.

CITRUS Trees

WE STILL
HAVE A GOOD
LINE OF

Navels
and
Valencia

LATE ORANGES

ABSOLUTELY UNTOUCHED
BY FROST

Our stock is grown under ideal
soil and climatic conditions, and is
straight, clean and thrifty.

Write us for special
prices on large orders.

In addition to growing all the best
varieties of oranges, lemons and
pomelos, we also carry a complete
stock of

DECIDUOUS FRUIT TREES

In nearly all the most wanted vari-
eties.

PECANS AND ALMONDS

We have a fine stock of these pop-
ular nuts and invite your inspection
and inquiries.

EVERGREENS AND ORNA- MENTALS.

In our Laguna Nurseries we carry
a fine assortment of ornamental
trees, shrubs, vines, plants, palms,
roses, etc.

Write for Prices, or—
Call and see us.

ROEDING & WOOD

NURSERY CO., Inc.,

1617 E. Washington St.,
Los Angeles, Cal.

Take Hooper Ave-
nue yellow car to
Washington Street
and walk 2 blocks
east, or take Watts
local direct to
nursery yards and
offices.



SANTA
CLARA
VALLEY
NURSERIES

MAX J. CROW,
Prop.
Gilroy, Cal.

IMPERIAL PRUNES on Myro.
BURBANK'S "STANDARD" PRUNE.
BARTLETT PEARS, APPLES, CHER-
RIES, ALMONDS, PEACHES, BLEN-
HEIM AND ROYAL APRICOTS.
FRANQUETTE, MAYETTE AND
PLACENTIA GRAFTED WALNUTS.
10,000 Loganberry Tips.

A complete line of other Fruit Trees,
Ornamentals, Small Fruit Plants, Palms,
Roses.

EUCALYPTUS

We have our usual stock of high-grade
trees, to which we invite correspondence
of intending planters.

W. A. T. STRATTON

Petaluma, Cal.

"The whole scheme of social insurance
is one of taxation distributed to society
to cover losses to employees occasioned by
accidents. So far it may be just, and
there is no reason why farmers should
be exempted from taxation. But there is
an economic reason recognized by other
States why this species of taxation should
not apply to farmers as to other indus-
tries. The accepted theory of social in-
surance was thoroughly expounded by the
Supreme Court of New York in its deci-
sion declaring unconstitutional the com-
pulsory compensation law of that State.
In the language of this court:

"There can be no doubt as to the the-
ory of this law. It is based on the propo-
sition that the inherent risks of an em-
ployment should in justice be placed upon
the shoulders of the employer, who can
protect himself against loss by insurance
and by such an addition to the price of
his wares as to cast the burden ultimately
upon the consumer."

"Mr. Pillsbury, you have both affirmed
and denied this, thus:

"The second distribution of the bur-
den of compensation is in the form of en-
hanced prices to the ultimate consumer."

"Not all the producers can charge all
the cost to the consumer, but it is not in-
dispensable to justice that all shall."

"It is the industry that should bear
the expense, and yet those producers who
can pass the burden on to their consum-
ers will do so, and cannot be prevented
from doing so. Those who cannot will
have to stand it. The farmer complains
that he cannot and the complaint has
much merit. His prices are generally
fixed with a total disregard for his cost
of production."

"You tell us this is just and right, and
we may as well take our medicine. I
believe you are attempting to perpetrate
an outrage. If the theory of distribution
of cost is correct, it follows that in the
operation of the law every industry should
be able to add the cost to the selling
price."

It is a matter of common knowledge
that California's prosperity depends large-
ly on its great and not fully developed
horticultural industry, and that the matter
of price cannot be effected by any in-
creased cost of production except by re-
stricting this production. In this way this
legislation will react to the detriment of
all classes. For this and other reasons,
many States legislating on this subject
have excepted farmers, and it should be
done in California.

One of the prominent reasons advanced
for the necessity of compensation laws is
that the burden should be placed on those
best able to bear it—the employers. This
cannot hold good in regard to farmers if
the statistics of the United States in re-
gard to labor are correct. According to
these, those engaged in different occupa-
tions work to earn a dollar:

Mechanics working on plows
and hoes 3 hours
Wagon and harness makers. . . 3½ hours
Railroad employees transport-
ing farm products 2½ hours
Farmers (based on last year). 10 hours

From this it will appear that the farmer
is the least able to carry this burden, and
yet the most persistent attempts are be-
ing made to have the California legisla-
ture pass a law that will saddle nearly
the whole burden upon farmers.

The Senate bill No. 905 contains many
provisions unjust to all classes of em-
ployers. One is particularly vicious—
that employers cannot cover their liabili-
ties entirely by insurance. They are to
be held liable and not permitted to in-
sure against certain kinds of liability
which are unavoidable.

ROBT. G. WILLIAMS,

Chairman Liability Legislation Committee,
Fruit Growers Convention of California.
Stockton.

AGRICULTURAL LIME

Guaranteed to make
ADOBE AND CLAY SOIL

Like Loam.

LIME YOUR SUMMER FALLOWED LAND.

Alfalfa Must Have Lime.

Gypsum Contains About 25% Lime.

Hydrated Lime Contains About 74% Lime.

A Stockton customer writes:

"We tried your Hydrate of Lime on several small spots aggregating about
7 acres of grey adobe at our Bear Creek Vineyard that usually bakes im-
pervious to water or root penetration and in one year has mellowed to a
very respectable loam."

"I am well pleased with the experiment."

FREE BOOK OF FACTS AND PRICES ON APPLICATION.

Manufacturers LIME, GROUND CARBONATE OF LIME, and
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PACIFIC LIME & PLASTER CO.

807 Monadnock Building,

San Francisco, Cal.

WANTED

A live, energetic man who can qualify for position as Field
Manager with oldest, strongest, most reliable nursery concern
in the West. Experience less important than willingness to
hustle.

We also have several splendid openings for agents
in various localities, on terms 50% more liberal
than paid by other firms. Write quick if you want
permanent, good paying position.

THE WOODBURN NURSERIES, Desk D.

WOODBURN, OREGON.

Apply Nitrate of Lime as a Top Dressing Now

13% Nitrogen

25-30% Lime



TRADE MARK

in a soluble condition. The excellency of this com-
bination is appreciated by progressive growers—all
over the world. Nitrate of Lime has an immediate
and lasting effect.

Write for prices and particulars.

C. HENRY SMITH, Inc.

311 California Street, San Francisco, Cal.

SPECIAL OFFER FOR APRIL BUYERS

We have never advertised in the Pacific Rural Press. In order to get ac-
quainted with its readers, we have a special proposition for the buyer of
10-20-40 acres or more during April, provided he mentions this paper in an-
swering this advertisement.

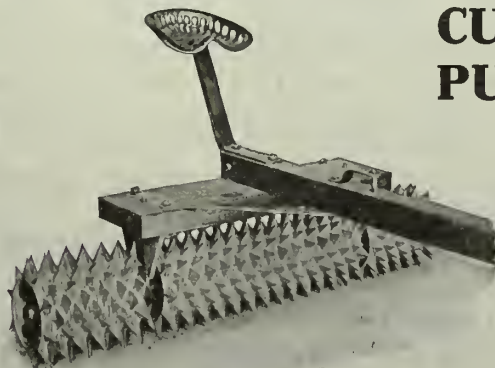
We have choice soil for citrus or deciduous fruits, vines, or alfalfa. We
are located in Tulare county and have foothill protection on three sides.

Various crops yield \$100 to \$300 an acre.

We absolutely guarantee water on every lot sold.

We ask only a small cash payment, then wait Six Years for the next pay-
ment. We give special discount for cash within four years. Our interest rate
is low. For illustrated folder with map, address

W. P. McKEE, Sales Manager, The OROSI FARMS,
425 Title Insurance Bldg., Los Angeles, Cal.



CUNNINGHAM'S PULVERIZER

It is the only clod crusher
on the market that will do
the work thoroughly and
scientifically for the Farm-
er, Orchardist, Nursery-
man or Gardener. Made
in many sizes. Write for
further information.

L. CUNNINGHAM,
Morgan Hill, Cal.

Warranted to Give Satisfaction.

Gombault's Caustic Balsam



Has Imitators But No Competitors.

A Safe, Speedy and Positive Cure for
Curb, Splint, Sweeney, Capped Hock,
Strained Tendons, Founder, Wind
Puffs, and all lameness from Spavin,
Ringbone and other bony tumors.
Cures all skin diseases or Parasites,
Thrush, Diphtheria. Removes all
Bunches from Horses or Cattle.

As a Human Remedy for Rheumatism,
Sprains, Sore Throat, etc., it is invaluable.
Every bottle of Caustic Balsam sold is
warranted to give satisfaction. Price \$1.50
per bottle. Sold by druggists, or sent by ex-
press, charges paid, with full directions for
its use. If send for descriptive circulars,
testimonials, etc. Address

The Lawrence-Williams Co., Cleveland, O.

OUTLOOK FOR THE SEASON.

(Continued From Page 423.)

hay and grain crop, unless it turns off very dry from this on, but both these are looking very good now. The sheep men claim that this has been the best lambing season that they have had for some years.

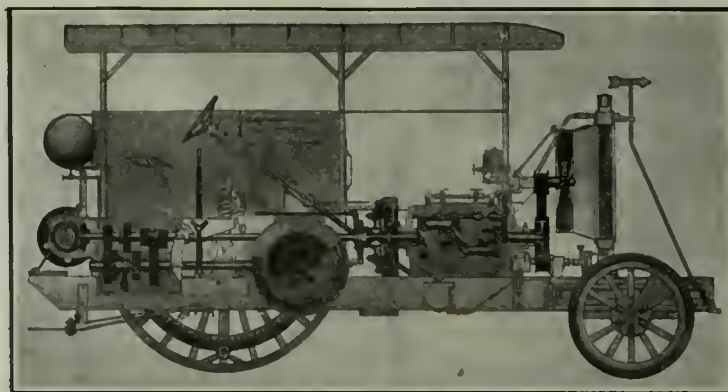
"As to the conditions in Sutter county now, I am not very well prepared to say, but when I was in that section the outlook was good for big crops, but whether the recent frosts hurt them much, I do not know. I was unable to get any idea of the conditions in Tehama and Colusa counties, except as I could judge them from conditions here.

NORTHERN SAN JOAQUIN VALLEY.—The correspondent from the counties in the northern half of the San Joaquin valley finds some things in very good shape and others below standard.

Grain hay in southern San Joaquin, east Stanislaus and northern Merced counties is not suffering, but will need considerably more rain to insure a good yield. In western Stanislaus and San Joaquin counties they are badly in need of rain to make even a seed crop with same hay.

Alfalfa hay in the Modesto Irrigation District had early irrigations and they will soon be cutting a good first crop. In the Turlock and Ceres district the lack of water in the river will make the first crop below standard. Hay is said to be selling at \$14 per ton loose. Alfalfa on the west side of Stanislaus and Merced is reported normal.

Conditions on the east side of the San Joaquin from northern Merced north are still favorable for grain, which has not been badly damaged except where hurt by the wind and cold in January. On the



Are You A Real Up-To-The-Minute Business Farmer?

or are you sticking to the traditions of your forefathers and using muscle instead of brain? Brain in farming means using the most modern and economical implements obtainable. And speaking of economy, don't confuse an investment with an expenditure. What kind of power do you use? Let us tell you about the

Ajax Gas Tractor

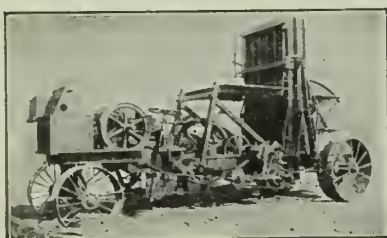
You feed it only when it's working. And when it does eat its appetite is small. Write us today and we'll tell you why and how the Ajax is the most economical power obtainable. It is fully guaranteed.

Write Us NOW

PIERSON, HEAD & COMPANY

37 CALIFORNIA ST.

SAN FRANCISCO



GAS POWER JR. MONARCH HAY PRESS

Baling most of the hay on the Coast.
Capacity, 25 to 90 tons per day.
Operated either by horse power or
gas engine.

Write for Catalogue.
San Leandro, Cal.



The water that is lost from leaky flumes and unlined ditches would make many a handsome fortune. An American Ingot Iron Flume has all the merits of strength and resistance to corrosion that have been so amply demonstrated by the road culverts made from this material. It is easily installed—whether sunk into the ground as a ditch lining, laid upon the surface, or supported on a trestle. When the permanence of the material is taken into consideration, it is found to be the most economical of conduits; and it is **watertight**.

Made from Smooth or Corrugated Iron, and with or without cross-pieces, for varying conditions.

California Corrugated Culvert Company

American Ingot Iron 4-C Gates, Flumes, Culverts,
Siphons, Well Curbing and Barbed Wire

LOS ANGELES

WEST BERKELEY



Strong

Efficient

Permanent

SWINE.

SWINELAND DUROC-JERSEY TAMWORTH and BERKSHIRE SWINE
Boars, all ages, for immediate delivery. All stock fully guaranteed and registered. Money back if you are not fully satisfied. SWINELAND, Box 161, Yuba City, Cal.

REGISTERED BERKSHIRES—Boars and young stock; write for prices; immediate delivery; satisfaction guaranteed or money refunded. Glorietta Stock Farm, Woodland, Cal.

REGISTERED DUROC JERSEY SWINE
Some extra good young boars for sale, ready for service. Best Eastern strains. Ed. E. Johnson, Turlock, Cal.

REGISTERED BERKSHIRE SWINE—Best Eastern strains; bred sows and spring pigs for sale. A. B. Humphrey, Mayhews, Sacramento Co., Cal.

REGISTERED DUROC JERSEYS—No better anywhere. Boars, sows and young stock for sale. Immediate delivery. Jno. F. Daggs, Modesto, Cal.

MULEFOOT HOGS—Prolific, easy feeders, very prepotent. Young stock eligible to entry; also a few grades, cheap. Edouart Bryant, Lemoore, Cal.

POLAND-CHINAS; large type. The Browning Stock Farm. W. H. Browning, Woodland, Cal.

GEO. V. BECKMAN, Lodi, San Joaquin Co., Cal. Registered Poland-China Hogs, both sexes.

POLAND-CHINAS—Medium type. Fine young stock for sale. W. Bernstein, Hanford.

KNOB HILL STOCK FARM—Reg. Poland-China swine. A. M. Henry, Farmington.

CALIFORNIA NURSERY CO., Niles, Cal. Breeders of Thoroughbred Berkshires.

CHAS. GOODMAN, breeder of High-Class Berkshire Swine. Williams, Cal.

TAMWORTHS—THE BACON HOG. Kennedy Bros., Amsterdam, Cal.

S. B. WRIGHT, Santa Rosa—Registered Berkshires and Jerseys.

REGISTERED O. I. C. SWINE. C. B. Cunningham, Mills, Cal.

DAIRY CATTLE.

RANCHOS DOS RIOS, breeders of registered Jersey cattle. Oldest and largest herd in California; established 1868. A few young bulls from best cows in herd ready for delivery. Address R. E. Watson, R. No. 2, Modesto, Cal.

JOHN LYNCH, breeder of Registered Short-horns, milk strain. High class stock. First-class dairy breeding. Smooth cattle. Best pedigree. P. O. Box 321, Petaluma, Cal.

T. B. PURVINE offers for sale a few nice registered young Jersey bulls and bull calves out of fine cows. Petaluma, Cal. R. F. D. 4, Box 195.

GRADE SHORT-HORN DAIRY COWS FOR SALE, also a few registered Holstein bull calves. Apply A. Balfour, 350 California St., San Francisco.

H. N. LOCKE CO., Lockeford, Cal.—Choice young Jersey bulls and bull calves from prize winners and producers.

CHAS. N. ODELL, Waukeen herd of registered Jerseys. Correspondence solicited. R. No. 5, Modesto, Cal.

MINOR & THORNTON, Breeders of Reg. Holstein-Friesian cattle. Kearney Park P. O., Cal.

REGISTERED JERSEY CATTLE—Young stock for sale. W. J. Hackett, Breeder, Ceres, Cal.

BEEF CATTLE.

SIMON-NEWMAN CO., Breeders of Registered Herefords. R. M. Dunlap, Manager, Newman, Cal.

SHORT-HORNS—Villager heads the herd. D. R. Hanna, Ravenna, Ohio.

T. B. GIBSON, Woodland, Cal.—Registered Short-horns and Poland-Chinas.

HEREFORDS—Fairfax Perfection heads herd. J. P. Cudahy, Belton, Mo.

HEREFORDS—Gay Lad 6th heads herd. O. Harris & Sons, Harris, Mo.

MISCELLANEOUS.

SHORT-HORNS AND BERKSHIRES—Count Avon, International grand champion, heads herd. C. F. Curtiss, Ames, Iowa.

FOR SALE—Fine Holstein cattle and Berkshire boars; all subject to registry. Geo. C. Roeding, Fresno, Cal.

JERSEY CATTLE, DUROC JERSEY SWINE. Mossdale Farm. J. E. Thorp, Stockton, Cal.

SHEEP.

CHAS. KIMBLE, Breeder and Importer of Rambouillet. Hanford, Cal.

west side there is very little hope of a grain crop now.

The stockmen along the east side foothills are beginning to lose some stock, especially where they have overstocked, and even with plenty of rain from now on, it is feared that the fall pasture will be very poor. Miller & Lux are losing a good many on their west side ranches, due, it is said, to overstocking.

Elberta peaches on the east side are practically destroyed by frost in most places. Lovells and Muirs have been damaged 50% by the frost, at a conservative estimate, and it may be even worse. Everyone considers that at least 75% of the apricot blossoms have been destroyed by frost in Merced and Stanislaus counties.

Grapes were not out when the frost came and were therefore not damaged. Almonds were badly hit in Merced county, but in the Oakdale district, two weeks ago (before the frost) prospects were fine for a full crop. No report since.

BAY COUNTIES.—From the bay counties one correspondent writes: "On our trip through the Livermore valley and the section of Alameda county around Sunol and Haywards we found that the rain of two weeks ago had been a great help. We found that most of the grain had sprouted in good shape, but before the rain had not made much growth, but since the rain it has made abundant progress. If we continue to receive good showers through April and May a good crop can be expected this season."


"The grazing land was also greatly benefited and stock that had to be fed before the rain are now taking care of themselves. The sheepmen there had good success during the lambing season, owing to the fact that we had no very severe storms through the month of March."

"In Napa county we found the best looking prospects for a grain and hay crop of any section that we had been in. The grain had sprouted well, and as the rainfall in this section is up to normal, it has made a splendid growth. The grazing land is also in good shape, no stock having been fed hay at all this season. The sheep look especially well. The frost is reported to have done some damage to apricots, peaches and sugar prunes, also some damage to the French and Imperials. We found the fruit trees in a very healthy condition, the rainfall having been heavy enough to insure a good crop for this season."

Another writer from the Santa Clara valley states: "The prunes are blossoming very heavily all over the district. Early apricots, peaches and almonds, as

well as some prunes are damaged by frost in the floor of the valley. In the foothills very little damage is reported. Many orchards have had heaters in operation during the frosty nights. An unusually large amount of irrigation has been done. Prospects are that the peach crop will be very light; apricots not more than half a crop; prunes will be much less than normal, but it is impossible at this time to estimate the loss by frost

PACIFIC SILO

 a Concrete Silo with all modern improvements. As permanent as the ground upon which it stands. Especially constructed to meet the requirements of the Pacific Coast States. **CONTINUOUS OPEN DOOR FRONT** Perfect System of Ventilation and Drainage. The most economical silo to build and to use. Write for "Catalog C" to **DELTA CONSTRUCTION CO.,** P. O. Box 908, Sacramento, Cal.

and dry season. More rain is needed to make a hay crop in the valley."


Tamworth
Duroc-Jersey
Berkshire Swine

2 Gold Medals
2 Silver Medals
4 First Premiums
2 Second Premiums

at the

California State Fair

We are booking orders for Spring pigs for May and June delivery.

SWINELAND FARM
Box 57, Yuba City, Cal.

TRADE

in your old separator

DE LAVAL

An up-to-date De Laval Separator will, on an average, save its cost every year over any other separator.

In addition to the actual saving in more and better cream there is also the saving in time of separation and cleaning, in easier running, greater durability and fewer repairs.

Because of these savings more than 40,000 users of inferior and worn-out separators of various makes last year took advantage of the De Laval exchange allowance and traded in their machines on account of De Laval.

USERS OF OLD DE LAVALS, on account of the many improvements in the modern De Laval over machines sold 10 to 25 years ago, including closer skimming, easier running, better oiling, etc., will also find it to their advantage to exchange their old De Laval for an up-to-date De Laval.

SEE THE NEAREST DE LAVAL AGENT. He will tell you how much he can allow on your old machine, whether a De Laval or some other make, toward the purchase of a new De Laval. If you don't know a De Laval agent, write to the nearest De Laval office, giving make, number and size of your present machine, and full information will be sent you.

DE LAVAL DAIRY SUPPLY COMPANY

165 Broadway
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101 Drumm Street
SAN FRANCISCO

1016 Western Avenue
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Am Now Booking Orders For

Live Stock from the East

If in need of any stock to improve your herd, let me know.

W. M. CARRUTHERS
Live Stock Commission

421 Examiner Building

San Francisco

HORSES AND MULES.

REGISTERED PERCHERONS FOR SALE
—Send for list to owner. All acclimated. Two gray stallions matured. State certificates of soundness. One 2-year-old black stallion. One white brood mare. Four black brood mares. Prices low owing to owner's illness. Send for list. M. E. Sherman, R. R. 6, Box 86, Fresno, Cal.

FOURTY HEAD unbroken mules from weanlings to four-year-olds to exchange for broken stock up to twelve years of age. Young mules located near Stockton. Address Room 715, 704 Market St., San Francisco.

PURE-BRED REGISTERED PERCHERONS AND BELGIANS. A few choice young stallions from three to five years old, also two and three year old fillies for sale. Los Altos Stock Farm, Los Altos, Cal.

PERCHERONS—Pure-bred, registered, 2-year-old stallions for sale; or will exchange for draft horses or stock cattle. H. T. Liliencrantz, Aptos, Cal.

REGISTERED BLACK PERCHERON Stallion, Joaquin, No. 77186; three years old next April. Price reasonable. F. S. Israel, Linden, Cal.

BIG BONED BREEDING JACKS for sale. Jas. W. McCord, Hanford.

RUBY & BOWERS, Davis, Cal.—Registered draft stallions, all breeds.

Foothill Horse and Mule Growing.

Lewis Weller, who is described by the Escondido Times-Advocate as "a man who does not pose as an expert in everything pertaining to horses, but who has lived in this vicinity a quarter of a century, and in that time has handled horses by the score," gives that journal a racy account of what he holds to be a good local industry in this way:

DOES IT PAY TO RAISE HORSES HERE?—It does. But any horseman will tell you that you must breed to the best and for heavy draft stock, mules or horses. It does not pay to raise small scrubs. There are still too many of these in our community.

Why does it not pay to raise small horses? The answer is comprised in one word—automobiles. They discount the light driving and saddle horses in a manner that would surprise you. There is really no market for the light horse.

But the heavy horse—the general purpose type, like the Clyde or the Percheron—he is a good property indeed. My observation has been that solid colors are preferred, black or bay; perhaps the latter is in the strongest demand. He must be long and rangy, to give his pulling muscles full play, neck well arched, legs straight and not too chunky.

WHY NOT MULES?—Yet the best market of all is for draft mules. I am puzzled why breeders do not use more jacks. It is safer to raise mule colts than horse colts; I have never known a mule colt to get crippled in barbed wire. We sometimes laugh at donkeys for their seeming stupidity, but they certainly do "savy" barbed wire.

A good mule will sell himself in this community, or anywhere, I dare say, in California. Take a strong, husky one, broken in at three or three and a half years—why, the proverbial man in the wilderness with his mousetrap will not have near the number of callers that the mule-owners receive. No, you never have to peddle mules. People will make a road to your door to buy 'em.

Cutter's Anthrax and Blackleg Vaccines

are given the preference by 80 per cent of California stockmen because they give better results than others do.

Write for Prices, Testimonials and our New Booklet on Anthrax and Blackleg.

THE CUTTER LABORATORY
P. O. Box 257, BERKELEY, CAL.

BERKSHIRES

Our herd is now one of the best in the State, being rich in Silvertip, Black Robinhood, Longfellow, Empress and Masterpiece Strains.

Prices reasonable, satisfaction sure. Correspondence solicited from interested parties.

OAK GROVE DAIRY FARM,
Woodland, Cal.

HOLSTEIN BULLS

3 past Yearlings from Tested Dams.

HEENAN & WELDON
Sacramento, Cal.

Box 962.

Blake, Moffitt & Towne

Dealers in 37 FIRST STREET, SAN FRANCISCO
Blake, Moffitt & Towne, Los Angeles
Blake, McFall & Co., Portland, Ore.

One or two comparisons may help to emphasize my argument. A stallion gives about 20 years of service but must not be used more than 4 years in any one neighborhood on account of inbreeding.

A jack gives 25 years of service, and there is no neighborhood limit for his off-springs never reproduce.

An average draft horse of 1200 pounds, aged 4 years is now worth \$150.

An average draft mule of 1200 pounds, aged 4 years is now worth \$200 to \$250.

In mules, as in horses, solid colors are preferred, black, brown or bay. Occasionally you see a white or gray mule, but the market does not demand them.

Jeanette offsprings are rare in this community, yet they have been bred successfully. These mules have a horse sire and wild west, long-eared, mother. Mules so produced have exceptional qualities as saddle steeds. In olden days, the California mare and the Mexican-Spanish burro produced a very strong durable mule, but they were usually wild and inclined to be vicious. Only a few of these mules are left. They weigh 800 to 900 pounds. As the country settled up American bred mares began to arrive and jacks were imported from Missouri and Kentucky. A very high type of mule is now being produced by the few breeders who have seen the profit there is ahead for them.

CALIFORNIA HORSES.—The California native horse (so-called, though, as the books say there were no horses in America until the white man came) was undoubtedly of excellent pedigree. Those which were here in the days of '49 had been brought by the Mexicans from Spain. There is no doubt in my mind that the statement is true that the Spanish got their horses from the Moors and that the Moors received them from the Arabs. I can trace in our cayuse and broncho many of the good traits that the books say pertain to the Arab. He is set, he is sure-footed, he is hardy—but, alas, he is not pettable. Arabs may live in the same tent as their noble steeds, but I'd like to see them try even in the same corral with an "Indian pony."

Up to 15 years ago we had really no good horses in this country. They were all California horses or half-breeds. But as more Americans came in, American stallions were introduced and the plane of horse standards was sensibly raised.

SAN DIEGO FOOTHILLS FOR HORSES.—The condition in this part of California are nearly ideal for horse and mule raising. This is not a mere boast, it is a fact. Range is plentiful, and weather is ideal, so a colt costs practically nothing for feed and care until it is ready to be broken at 3 or 4 years of age. Foothill feed seems to be unusually strengthening. The Eastern visitor seeing from the ear windows our horses grazing upon apparently dry, brown grass, doesn't realize what a valuable feed most of it is.

I have noticed a peculiarity that I have never seen mentioned in print, namely that the horses of the foothills are harder than the valley or salt grass stock. The feed of the hills around Escondido can be favorably compared to the blue-grass regions of the east Mississippi. As to horse disease and epidemics, the Escondido-Sorrento section has certainly no more than any other part of the United States with which I am acquainted, and I really believe that when plagues of the sort do come, we can control them better because we have more room.

The man with a good stallion, a wide pasture, and a good well can make a modest fortune right here in the southwest section, raising horses.

A. C. RUBY, Portland, Ore.

C. W. BOWERS, Sacramento.

RUBY & BOWERS

THE LARGEST HORSE IMPORTERS ON THE PACIFIC COAST



PERCHERON, BELGIAN, ENGLISH SHIRE, CLYDESDALE, HACKNEYS AND COACH STALLIONS AND MARES.

We sell more imported horses than all other firms on the Coast because we are direct importers and give a four-year guarantee which is good right at home. We have on hand at all times the largest and best lot of heavy draft stallions and mares, both American bred and imported, to be found any place in the West. If you are in the market for a high-class stallion or mare, don't fail to give us a call, as we can sell you more genuine horse for the money than any other importer in the business.

Address:

RUBY & BOWERS, Davis, Cal.

We Have Imported More Horses Than Any Other Firm in the United States During the Last Year.

References: American Natl. Bank, Pendleton, Ore. Merchants Natl. Bank, Portland, Ore. First State Savings Bank, Marcellus, Mich. Bank of Yolo, Davis, Cal.

America's Leading Horse Importers

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Oakland, California



We have just received at our stables in Oakland a large importation of prize winning Percherons. These stallions comprise nearly all of the leading winners at the recent French shows, every animal at maturity weighing much over a ton, and they are strictly stallions of the well known McLaughlin type. We import more, sell more, and therefore can sell cheaper than anybody else.

McLAUGHLIN BROS.

Stables: At Cor. 47th and Salem, in Emeryville, Oakland, Cal.



Shire Stallions and Mares

I have still on hand a few extra good draft stallions. They must all be sold this spring to make room for a new importation, and therefore I am offering them at very low prices.

WRITE OR CALL

HENRY WHEATLEY, Salvador Stock Farm
NAPA, CAL.

Waterloo-Boy Hopper-Cooled Gasoline Engine

1 1/2, 2 1/2, 4, 6, 8 and 12 HORSE-POWER

MATERIAL, WORKMANSHIP AND POWER ABSOLUTELY GUARANTEED

THE WATERLOO-BOY is positively the best engine for running machinery such as feed cutters, grinders, grindstones, cream separators, washing machines, churns, sheep-shearing machines, lathes, drill presses, pumps for irrigation purpose, etc., etc. Further information free on request.



FREE CATALOG—A catalog containing valuable information about stationary engines of every description, their design, construction, care and operation. This catalog tells you—shows you—in clear, easily understood and concise language, all about our line of superior gasoline and distillate engines. You will want this catalog if you are interested in windmills, tanks, pipe fittings, pumps, etc. Write for it today—NOW. Our money back guarantee is your protection.

THE NATIONAL CENTRIFUGAL PUMP With Ring Oiler Bearings, Elbow, Two Bearings, Large Throat. There is nothing more simple or easier than running a "NATIONAL."

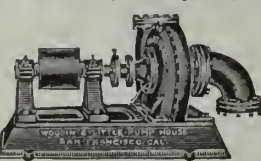


Illustration shows a new centrifugal pump which we have had built to our own specifications. This pump has many features not found in other pumps of this type.

Only the best materials enter into the construction—thoroughly tested and inspected before being shipped—fully guaranteed.

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SAVE YOUR GRAIN

Each year the loss to farmers through the inroads of the squirrel is enormous. This loss can be almost entirely wiped out through the intelligent use of

HALL'S SQUIRREL POISON

Squirrels breed so rapidly that the ordinary poison fails to make any noticeable impression upon their numbers.

Hall's Poison is prepared by special machinery with a hard, sweet coating, singularly attractive to this animal, and it is a

REMARKABLY EFFICIENT EXTERMINATOR

It has been used successfully for 20 years, and is no experiment. Its reliability has been fully proven.

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It will save you Time, Labor and Money. Make the test yourself and watch its effect.

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Cost only half as much as the milk raised calves. Increase your profits by using

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The perfect milk substitute—the best since 1800. Write today for free book, "How to Raise Calves." Your name and address on a postal is enough.

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BREEDERS AND IMPORTERS
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A-1 Grade Second-Hand

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SCREW CASING

Best Quality. Fully Guaranteed. Get our prices before buying. They will interest you.

GEO. P. ALEXANDER & CO.,
320 Market St., San Francisco.
Formerly ALEXANDER PIPE CO.

HOW TO TEACH THE HORSE NOT TO PULL BACK.

To the Editor: Take a new one-inch rope about 10 feet in length, with a bow-line knot. Tie one end rather snugly about the animal's neck, then tie up to a tree or post you feel sure an elephant could not pull over, with just an ordinary hitch of a couple of feet or so.

Now if he is well up to the trick, of his own accord he will soon start into business; don't say a word, but just look on and laugh. He will probably get down to a sitting position, but soon will get up to see if standing is not more comfortable. Wait a few moments. If he doesn't seem inclined to repeat the funny show, then set out to put on the bridle, and probably you can have the second laugh. Don't hurry; give him his time, and he will be in the "never again" list after that. But to be doubly sure, use that inch rope a few days before trusting a breakable strap.

St. Helena.

R. E. Wood.

ANOTHER PRESCRIPTION.

To the Editor: Use a 3/4-inch rope; make a loop so knot comes to withers, with loop dropped over hips as breeching, then pass the single rope from knot on withers past neck through halter rings to tie it to the manger pole, and let her pull.

Lompoc.

J. A. S.

MODIFYING THE TROUBLE.

To the Editor: In answer to R. A. W., Amador, I would say that in more than thirty years' experience with horses I have never found a sure remedy for the habit of "pulling back" on the halter. There are, however, several ways of getting around it, so that the habit is less obnoxious than when the horse has his own sweet will in the matter.

Usually, if one, on entering the stall, unties the halter rope quickly and at the same time without apparently looking at the animal or at the knot which he is untying—that is, turns his side or back to the horse's head and unties before the horse is aware of his intention—the animal will, after jerking back finding nothing to pull against, after entirely forget the habit after a few times of futile effort to pull back. It is always better to untie such an animal before harnessing.

If the halter rope is tied around the body just back of the shoulders, passed between the forelegs and through the halter ring (running freely through the ring), not one horse in twenty will pull back after trying it a time or two.

Another tie is to make a crupper of the light rope, bringing the ends from on top of the tail around each side and under the forelegs, then loosely through the halter ring.

A sure tie, and a perfectly safe one, is to have a strap with a buckle and loose ring, made to fit around the ankle or fetlock. Tie from this ring directly to manger or stanchion. No horse will pull against a forefoot tie.

A. L. B.

Stevinson.

This is surely interesting and helpful.

SHROPSHIRE

Pure Bred and Registered

For 1912:

140 Head Yearling Rams
150 Head Ram Lambs

Enterprise Stock Farm

H. P. EAKLE, Jr. Woodland, Cal.



An Up-to-date dairy barn means bigger profits.

Is Your Barn Up-to-Date?

Modern dairying demands modern barn equipment. In this age a modern barn is a necessity. It saves money, time, work and worry. Write us to-day and learn all about



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MAKES COWS PROLIFIC

Don't sell your barren cow to the butcher.

She can be made productive and profitable

by the use of KOW-KURE, the great cow remedy. Cow owners by the thousands have doubled the value of their cows by making them prolific breeders.

KOW-KURE is a medicine for cows only, and is a positive cure for all ailments peculiar to cows—ABORTION, SCOURS, MILK FEVER, LOST APPETITE and other affections that make cows sickly and unprofitable. It will keep well cows in the best of health and prevent disease. Healthy cows produce more and better milk and require less care. Send to-day for our free book, "More Money from Your Cows." It gives a world of valuable information that every farmer and dairyman ought to have.

DAIRY ASSOCIATION CO., MFRS.

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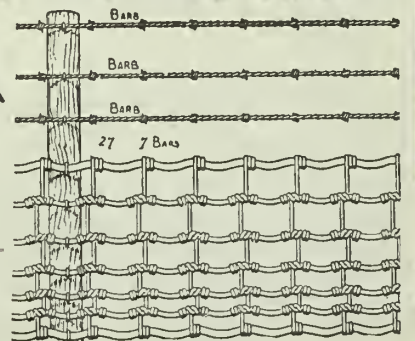
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Our retail prices are less than our competitors' wholesale prices.

We guarantee our pumps the equal in quality and capacity of any. Live agents wanted. Write for circular and prices.

PEERLESS IRON WORKS, Sacramento, Cal.
Mention Rural Press.

How Many Fowls in a Yard?

[Written for the PACIFIC RURAL PRESS by
Mrs. SUSAN SWAYSGOOD.]

There are often inquiries along this line, also as to how many male birds should be kept in a yard, etc. And each question brings forward another or two before the first can be intelligently answered.

For be it known that while we can yard 50 Leghorns in a house say, 10 by 12 and a run 20 by 30; we could not house 50 Orpingtons in a house of that size. An Orpington hen should have, at least, 10 inches roosting space, and more is better, while a Leghorn will get along nicely with 6 inches.

The best success I ever had with Leghorns was in housing them in good inch board lumber houses with all joints slatted to keep out draughts and one end

S. C. WHITE LEGHORN BABY CHICKS,
\$9.00 per 100, \$85.00 per 1000.

S. C. WHITE LEGHORN HATCH-EGGS,
\$1.00 per 15, \$5.00 per 100.

My stock is thoroughbred and carefully selected for Standard and laying qualities.

J. R. HEINRICH POULTRY YARDS,
Arroyo Grande, Cal.,
San Luis Obispo County.

PENNANT STRAIN
BARRED and BUFF
PLYMOUTH ROCKS.

A few choice cockerels and pullets left.
Eggs for hatching after January 1st.

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FOR CHICKS

Which are **Cheaper** and **Better** than all the rest, because we have **Better Stock** and **Better Equipment** and because we do give you **Better Service**.

Write for price list and pamphlet, mailed upon request, without cost.

Single Comb White Leghorns a specialty.
CARL D. THOMAS, Proprietor,
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Free Book

giving a full account of hatching, raising, and caring for chickens, with details of a Complete System of Feeding.

Will be sent to you on application

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FISH MEAT MEAL

FOR POULTRY

THE VERY BEST PROTEIN
FEED PRODUCT ON THE
MARKET TODAY.

Write us for free sample and feeding test reports.

WESTERN TALLOW COMPANY
38 BEALE ST., SAN FRANCISCO

open. The houses were 10 by 12 with floors in; the perches swung from the rafters by bailing wire twisted and fastened to the corners of the frame. These perches were bolted together at the corners, or rather the frame, as the perches proper set loose on the frame. A piece of wire was also fastened to the center of the front cross piece near the open end so that when cleaning the house out this frame could be raised and fastened up to the ceiling. It will be seen that this was an advantage, because the operator has a good opportunity to watch the perches for mites, besides making easier to clean out.

This style of making perches is away ahead of any fixed kinds because there is no need to break anything when you want to convert a house to some other use. All that is needed is to take out the bolts at the corners and carry the whole thing out, thus a roosting house can be turned into a laying house and there is no unsightly boards on the sides to breed lice or catch in your clothing.

NESTS.—As Leghorns like best to get as high as possible either to roost or lay, the nests can be put around the house above the perches, just so that they can be reached from the perch. Hens like to be away from the ground, and in all the small breeds the instinct to climb seems so prominent that it is best to indulge it.

Now, if these 50 hens are intended for breeding purposes, while the same sized house will accommodate them, the yard should be made larger or there will be all sorts of trouble if more than one male is kept with them. Two males are really none too many, but I would not put more than two under any conditions. A good vigorous cockerel is competent to care for 25 hens, that is, of the Leghorn variety, but he must be well-fed, and once a week he should be fed a little raw meat and have a good square meal all to himself, he should also be dusted for lice.

With the large breeds 12 hens are plenty to keep with one male, and if they are run in larger numbers they should have either free range or good big yards, for while the males are not so liable to fight as the smaller birds they are quite as bossy, and just waste time and energy running each other around.

ARRANGING THE HOUSES.—On the colony plan large numbers of fowls can be kept with very little labor if care in selecting a site for the best arrangement of the houses is taken. Each house should be far enough away from its neighbor to allow the hens a good run around so they will know where they belong. In the heavy breeds there should be good roomy nests and in positions of easy access; with the Leghorns the higher the nest the better they like it, and as I said if the nests can be put around the house so much the better, but they should be removable or you will not be able to raise the perches to clean under. Five gallon oil cans make good nests for Leghorns, and they are easily kept clean and free from mites.

Many more little economies in labor can be practised where fowls are kept in numbers even when yarded, in such things as the nests and feed hoppers; because hens kept for laying purposes only, should have feed before them all the time, while those intended for breeding should be made to scratch and work more for what they eat.

But no matter what hens are kept, what we should aim at is first health and vitality, for unless we have these they can be no profit, and hens in small numbers are always more profitable than they are more free from disease.

For Egg Profits you should use

**HIGH
PROTEIN**

Meat Meal Bone Meal
Blood Meal Oyster Shell
Mixed Meat and Bone
Ground Bone

Ask our dealer, or
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PREMIER POULTRY FOODS "Good as the best
Cheaper than the rest."

Ask us
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It saves expense and
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WHITE LEGHORNS

Selected and mated to imported stock cockerels.

BABY CHICKS at \$12 per hundred.

EGGS \$6 per hundred in lots of less than 1000 eggs. Orders in excess of this, 10c per dozen above highest market price one week before shipment. 75 per cent fertility guaranteed.

8000 hens yarded—sanitary conditions perfect.

Well raised—well culled—eggs will produce layers.

PENS—TRIOS—SINGLE BIRDS OF ALL BREEDS.

BUFF ORPINGTONS—WHITE WYANDOTTES—RHODE ISLAND REDS AND BARRED PLYMOUTH ROCKS.

EGGS at \$6 per hundred and \$15 per hundred for **BABY CHICKS**.

S. C. W. Leghorn Pullets in full laying from \$7.50 to \$15 per dozen.

Eggs and stock from prize winners a matter of correspondence.

UTILITY STOCK

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S. C. White Leghorn
CHICKS -:- EGGS

Don't place your order for chicks or hatching eggs before you hear from us.

Our quality of stock and low prices combined are sure to be of vital interest to you.

Write today for our descriptive pamphlet; it's free.

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Night Scene Showing 1700 Chicks, 10 Days Old about an Arenberg Patent Stove.

This picture is from an actual photograph, and the stove is the original and only perfect oil stove made. This stove has REVOLUTIONIZED the rearing of **BABY CHICKS**. It is

**Arenberg's Patent
Brooder Stove**

and has proven to be the most successful brooding and heating stove on the market. Awarded Gold Medal for most meritorious California invention at California State Fair. Perfectly safe, simple, easy to manage. Burns Stove Distillate, Engine Distillate, Coal Oil, and, in an emergency, can burn Wood or Coal. For full particulars write

H. F. ARENBERG, Petaluma, Cal.

Live Agents wanted in every state and county in the United States.

BABY CHICKS

Hicks' Jubilee Hatchery is now booking orders for Chicks. We guarantee satisfaction.

Buy from the one that does his OWN HATCHING.

W. Leghorns, B. Rocks, Buff Orp., Blk. Minorcas, R. I. Reds.

Send for Circular.

W. J. HICKS, Route 2, Box 22, PETALUMA, Cal.



REDWOOD TANKS

I deal direct with the consumer. If I had agents to sell my product it would mean that I must add to my price as much as the agents' commission would be. My lumber is bought direct from the forest. Latest improved machinery. Up-to-date methods. Redwood Tanks, Picking Boxes, Peach Boxes, Drying Trays, Egg Cases. A tank 5 ft. diameter, 2 1/2 ft. deep, \$7.50. A tank 6 ft. diameter, 2 1/2 ft. deep, \$10.50. Large stock of tanks of various sizes in stock. Anything made to order on short notice. Spraying tanks. Grape stakes.

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MAMMOTH BRONZE TURKEY EGGS
From the largest and best pure-bred flock in the world. All turkeys carefully selected, and combine the greatest prize-winners and the best blood of the East and Middle West. They have large bone, long deep bodies, full breasts, brilliant plumage and are healthy. No inbreeding. Write for further information. Geo. A. Smith, Corcoran, Cal.

OUR GOLDEN ANTLERS AND SILVER CAMPINES took several first prizes both for the fowls and the best white eggs at San Jose, November, 1912. From Jan. 1st to Oct. 31st, 23 hens laid 4148 eggs, and are still laying. Crystal White Orpington and Antler pullets for sale. S. & B. G. HAIGH, Route 2, Box 4C, San Jose, Cal.

BUFF LEGHORNS—Booking orders for spring delivery of day-old baby chicks from two-year-old breeding stock; also eggs for hatching by setting or 100; 6000 egg incubator capacity. Indian Runner duck eggs for sale. Baby ducks hatched to order. R. M. Hempel, R. F. D. 1, Lathrop, Cal.

THE MANOR FARM RHODE ISLAND REDS have won more prizes, cups and specials during this season at the big important shows than all their competitors. They have the typical shape and rich red color. Eggs, chicks and breeding stock all the year round. Exhibition or utility and satisfaction guaranteed. The Manor Farm, Petaluma, Cal.

THE MANOR FARM HATCHING EGGS—Day old chicks and stock from best quality. S. C. White Leghorns, S. C. Black Minorcas, Barred Rocks and Orpingtons. Send for illustrated price list—it's free. The Manor Farm, Petaluma, Cal.

WESTERN HATCHERY—Fred Dye, Proprietor, successor to Dye & Fredericks. Now booking orders for day-old chicks, from heavy-laying strain White Leghorns. Prices on application. Box 2, Petaluma, Cal.

PIGEON BARGAINS—Fine young Homers, \$1.00 mated pair. Large Runt crosses, \$2.00 mated pair. Thoroughbred Carneau, \$3.00 mated pair. Discount for quantities. Sunny Slope Squab Farm, Healdsburg, Cal.

FOR SALE—Squab breeding pigeons. Carneau youngsters from pedigree strains, \$5.00 per doz. Six weeks old. Write for particulars. Buckner's Pigeon Farm, Santa Rosa, Cal.

WHITE ORPINGTONS. The finest of thoroughbred breeding stock for sale at all times. Eggs for remainder of season \$3 per 15. Jeanne A. Jackson, Oroville, Cal.

SCHELLVILLE HATCHERY—Thoroughbred White Leghorn chicks shipped on approval; examine at your home before remitting; no weak ones charged for. Rural Box No. 72, Sonoma, Cal.

CROLEY'S POULTRY CONDITION POWDER—A tonic for Poultry.
25-lb. Galvanized Pails, \$2.00.
5½-lb. can, 50c.
2½-lb. can, 25c.

BABY CHICKS—Eggs for hatching. Buff Minorcas, White Orpingtons, White Plymouth Rocks, White Leghorns, thoroughbred Hoganized stock. Mrs. C. A. Sanford, Mountain View, Cal.

\$3.00 PER HUNDRED—Standard Thoroughbred White Leghorn eggs for hatching. Hatchable eggs from healthy hens. Heavy winter-laying stock. Andrew Emery, Kenwood, Cal.

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CHICKENS, DUCKS, GEESE, GUINEAS, Pea fowl. Address Wm. A. French, 545 W. Park St., Stockton, Cal.

TRAPNESTED S. C. WHITE LEGHORNS. Eggs, chicks, stock. A. R. Schroeder, Box P, San Gregorio, Cal.

The men who care for one or more thousand hens have everything convenient for their work, and they always try to avoid having too many in a flock, even though they are only separated by a wire in the house. When long houses are built these divisions are made to form pens with a common alley-way for the caretaker to move freely with feed and cleaning out. So the system is the same whether we keep them in separate houses or in one house with separate apartments. The work is made easier by the latter method, so that one man can handle more hens, but very often the mortality is much greater than if the hens had been kept in separate houses some distance apart.

AVOID 'CROWDING.—All kinds of live stock do better in small lots than when kept in large lots close together, and this is not from any lack of sanitation or feeding, but simply because there is too much of the breath exhaled and inhaled, and that alone keeps them from doing their best. A few hens well cared for and kept in a healthy sanitary house will pay a bigger dividend in eggs than twice their number crowded into the same space, no matter how much feed they have. This has been demonstrated so many times that it needs no comment, but still we are pretty much all alike, and will persist in trying to make two blades of grass grow where there is only room for one. Crowding is a poor business whether it is in the vegetable or animal kingdom.

Not very long ago a lady wrote me to see why her hens' eggs were not fertile, she said she had 50 Leghorn hens and 6 roosters in a yard, and yet the eggs would not hatch. Now any reasonable breeder would know the reason for that, but as the lady was a beginner, and had no experience along that line it was a little excusable. And yet it would have been so much better if she had inquired into that before putting the males in the yard, anyone with ever so little experience could have told her that she was crowding matters. Two good healthy males were plenty, and I have seen good chicks come from 50 hens and only one male, of the Leghorn breed, but the male was alternated every three days with another. This kept a good strong vigorous bird in the yard all the time, as the one off duty was well fed and cared for during the rest.

BROODING.—The same law will apply in raising the chicks; do not crowd at any stage of growth, if you begin to brood a hundred chicks in a brooder that is sold as a 100 chick brooder, thin them out to 50 or 75 at the most when a month old, for during the month they will have grown to twice the size, and the breathing capacity is more than doubled, and this is what we have to guard against. A brooder that opens on all sides so that the chicks can get away from either their mates or the fumes of the lamp will stand more crowding than one closed up on two or three sides.

And as soon as the sexes can be distinguished it is best to separate them, for here we have another form of crowding, at the feed box, for the males or little cockerels never seem to be satisfied unless they get all, or after eating all they want trample on the rest. Pullets are always more shy and hang back when the other little fellows crowd. The

consequence is they do not grow as they would if things were more evenly balanced. If they are out on range, it does not matter so much because then the pullets will get enough by rustling, but when kept in close quarters I prefer to separate them as soon as possible. And in chicks, as in old fowls 50 in a lot do better than 100, and 100 better than twice the number. If the pullets can be separated into small lots of 25, and given range they will grow muscle and be all the better for it when they arrive at the laying age.

On a large poultry farm this sort of system would not pay because it would involve too much labor that would have to come out of the profits, but on small

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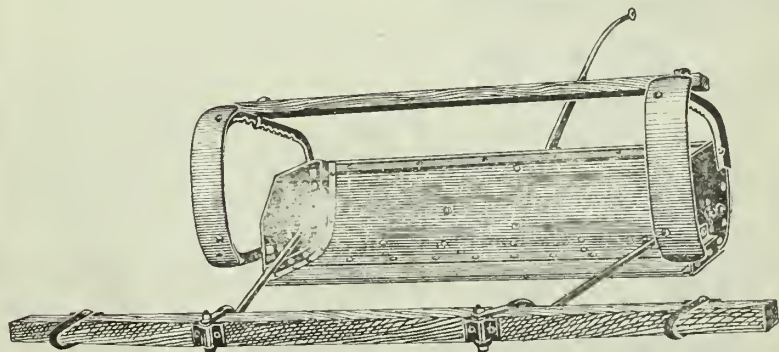
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This scraper is designed for use on levee building, irrigating ditches, railroad work and leveling land, and, in fact, all construction work where a drag scraper can be used.

This scraper is made entirely of high-grade steel. In the quality of materials used, workmanship and finish is superior to any other scraper made.

Dirt can be carried any distance and dumped in bulk or scattered in layers from one to twelve inches deep simply by adjusting two tail nuts, no wrench being required.

This scraper is made in four sizes, to cut three, three and a half, four and five feet, and in two patterns, "A" and "B." The "A" pattern with shoes or wearing plates on the bottom of the bowl, and the "B" pattern without.

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TWIN OAKS FARM—W. H. Blissell, Proprietor, Livermore, Cal.—Buff, White Orpington.

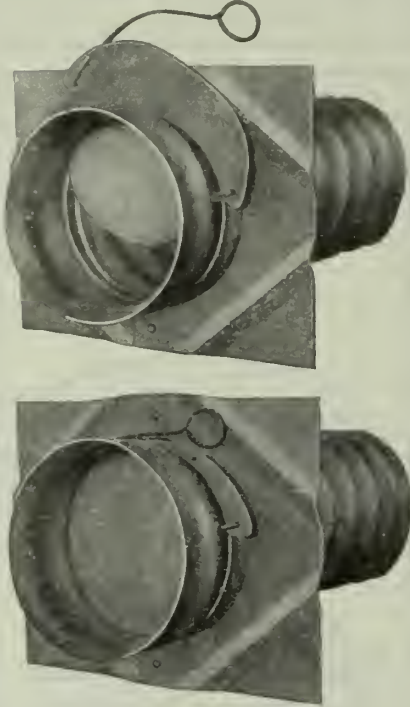
A New Irrigation Gate.

There is much difference of opinion among ranchers as to what type of gate or check is most practicable for the small lateral outlets from the main ditch. Redwood boxes, with various styles of slides or covers, have been very largely used because of their supposed cheapness. Experience has proved this a delusion however, for the alternations of complete wetting, when in use, with baking in the hot sun and dry air, at other times, proves ruinous to wooden construction in so short a period as to more than offset a low first cost. It is generally impossible to move them to a new location successfully, as the rancher often finds them in such condition after a single season's use as to make it better worth while to use new material. They seldom approach very near to water-tightness. In short, they have all the characteristics of a make-shift construction.

Cement pipe is much better in most localities. The principal objections to this form are its weight and clumsiness, the impracticability of moving it when once installed, and the various short-comings common to all cement construction as a result of imperfect materials or workmanship. In many of the most important irrigating sections the only sand obtainable is more or less impregnated with

salt or alkali; and this is the cause of the early collapse of thousands of dollars worth of cement work. The same thing sometimes applies to the water; in which case the making of reliable cement is wholly out of the question.

Wooden boxes, cement pipes and several other devices to which the ranchers have turned have all given very serious trouble by washing out. A little stream gets started beside or beneath the gate; and very soon its place is represented by



The 4-C Gate Opening and Closed.

a gaping hole through the bank. This difficulty has led many land owners to turn hopefully to corrugated iron pipe, which they observed successfully withstanding similar conditions when used as road culverts. It seems that the earth packs into the corrugations in such a way as to prevent the formation of the original trickle.

For all the better grades of corrugated culverts, high-purity iron is employed, on account of its resistance to corrosion; and, judging by the amount of deterioration now to be observed in those which have been installed during the past several years, their life will be considerably longer than that of the average cement construction.

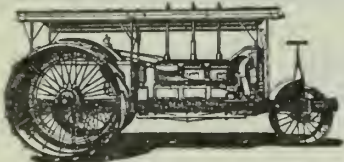
Until recently, the makers of corrugated pipe have been unable to offer any form of gate or check which was well adapted for this purpose. The requisites are that it be cheap, convenient, fairly water-tight and reasonably permanent. During the past year, however, a device has been patented which is known as the 4-C gate, the name being an illusion to that of the inventor, Mr. R. C. Force, and which seems to answer these requirements. This consists of a flat metal slide, working on a hinge through a slot cut in the upper half of the pipe, and seated in a groove or nib, rolled into the material. A bulkhead, also of galvanized iron, is a further protection against wash-outs.

One of these checks, with four feet of pipe, weighs only thirty or forty pounds, and installing or removing them is a short and easy matter. Their operation is much more convenient than that of most other types, and the flow can be regulated as desired. A ten-year-old boy can easily open or close a hundred of these gates in a small part of the time necessary for cement or wooden boxes. Altogether, they would seem to be worthy of serious consideration by the owners of irrigated land.

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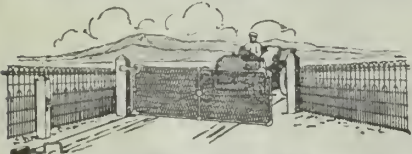
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160 Eleventh St., San Francisco.

BREAKING INTO THE HOP GAME.

To the Editor: I am trying to find out something about the needs of hops in the way of soil and culture. I have recently acquired a vineyard and orchard property near Healdsburg, and there are about 25 acres of it unplanted for the most part. These 25 acres are level, and the soil is rich and deep, very dark and carrying plenty of humus. It may be just the least bit sour; it drains, but does not drain very rapidly after it rains. I should like to know if this land promises well for hops. If it does not, what, in your opinion, would be the best use for it?

If the Department of Agriculture has a bulletin on hops, I should be greatly obliged to you for a copy of it. Any general information that you may wish to give regarding the planting of hops will be gratefully received. I should like to know when they are best planted, how much the acre cost of planting runs, the acre weight of a fairly good crop, the dangers that beset the hop on its way toward profit, etc.—Investor. San Francisco.

The fullest treatise on hop growing is a book by H. Myrick, entitled "The Hop," published by the Orange Judd Company, of which copies can be furnished from the office at \$1.50 postpaid. United States Department of Agriculture publications on the hop are Farmers' Bulletin 115 and 304. Bulletin 115 was written by Daniel Flint, an old California hop grower. You can get these free from Washington.

There have been a good many hops grown in the Healdsburg region and the safest thing for you to do would be to enquire whether the soil which you are considering is that upon which they have made their best hop product. It is not safe to trust to brief descriptive notes such as you furnish.

The trouble with hops getting into is first, the initial cost of planting, for purchase of roots, for outfitting the field with posts and wire for stringing; and second, the extreme fluctuations in price from year to year. The time to plant hops is really when they are very cheap because that fact induces many to plow out the roots and a yard planted then is ready for production during the high prices. Anyone who plants during high prices merely takes his luck in the expansion of area when everybody is doing it, and his product comes for sale during

the next low wave which always follows expansion. The investment for kiln drying, etc. makes hop growing a thing which the inexperienced man and the man with little capital had better not indulge in.—EDITOR.

Simple.

Gabe—Why do they say that the ghost walks on payday?

Steve—Because that's the day our spirits rise.—Cincinnati Enquirer.

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AGRICULTURAL REVIEW.

With the Stock Men.

Things are looking better all the way
along at the Portland stockyards. The
market for hogs last week was a sensa-
tion, clearing 10c to 20c, and finally stop-
ping at \$9.55 last Wednesday. This breaks
all records since 1910. Bulk of sales av-
eraged \$9.20 to \$9.40. Run for mutton
and lambs was very small. Wood year-
lings sold up to \$6.75 and ewes \$5.75;
sheared stuff, \$1 less. Lamb trade reached
\$8. Top sales for beef were made at \$8
to \$8.25.

The company being organized to con-
duct a stockyard at Los Angeles has pur-
chased 10 acres adjoining the property
already secured at Vernon.

Some good finishing of steers has been
going on down in San Benito and Mon-
terey counties. Out at the Allsal feeding
corrals, Sam Matthews finished for Jesse
Cornwell, of San Benito county, 25 head
of steers that brought \$104.40 per head.
They averaged 1201 pounds when they
came under Matthews' care, and after
40 days on 110 pounds of cured beet pulp
and 8 pounds of hay each day, they sold
at 1392 pounds apiece. The price was
7½c per pound, and they were sold to
A. Woods, the Monterey butcher.

Swanston & Son have been putting 1000
head of steers from the San Joaquin val-
ley on their Colusa, Yolo, and Lake coun-
ty range. The cattle will be sent later to
the Klamath Meadows to be finished
for beef.

Dr. F. H. Guldager, assistant to Dr.
Charles Keane, State Veterinarian, will be
missed by stockmen in various parts of
the State, having been appointed steward
at the State Hospital at Napa. He will
have charge of 1000 acres belonging to
the hospital, among other duties.

Sheepmen of the Sacramento valley re-
port an excellent lambing season. One
of the finest records reported is that of
W. H. Chism, who from a band of sheep
on the tules in Sutter got 43 lambs from
26 ewes.

The policy of several stockmen in Cali-
fornia of feeding potatoes to hogs is be-
ing followed extensively in Mason val-
ley, Nevada. There will be a lot of po-
tato land put into sugar beets this sea-
son.

L. L. McCoy, pioneer sheepman of Te-
hama county, and one of the best known
stockmen in California, has sold his
20,000-acre range to Alden Anderson and

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soil, fenced, nearly all level. Has raised
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\$25 an acre. You can buy any size tract
from ten acres up. Will grow good al-
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will be higher later on. We also have
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"LIPPIA"—the Drought-Resistant Lawn
Plant—handsome as bluegrass and ten
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FOR SALE—20,000 rooted seedling
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FOR SALE—30,000 sweet orange seed-
bed stock, 2 years old; some large enough
to bud now; run from ¼ to ½ in diam-
eter; not hurt by frost. R. TOON, 1337
West 24th St., Los Angeles, Cal.

NURSERY TREES, fruit and orna-
mental. Nearly all varieties to be seen on
our experimental place near State high-
way. LEONARD COATES NURSERY
COMPANY, Morganhill, California.

WALNUT TREES—Late varieties, grafted
and budded on hybrid root—Eureka,
Franquette, Mayette, Concord and Placen-
tia. Dr. W. W. FITZGERALD, Elks Bldg.,
Stockton, Cal.

FOR SALE—Sweet orange seed-bed
stock; fine two-year-old trees can be bud-
ded soon; not hurt by frost. R. TOON,
1337 W. 24th St., Los Angeles, Cal.

VILLA ANNA NURSERY—Fruit and or-
namental trees. Burbank standard cactus
a specialty. Santa Rosa, Cal. Write for
catalogue.

E. A. Bennett, of Ducor, Cal., will quote
you sour orange seed, delivered to any
postoffice.

\$1,000—

Ranches

Cost

only \$14.14 cash

and \$14.14 monthly,

in the beautiful

Mt. Diablo country,

just back of the Berkeley hills,

along the line of the

new Oakland-Antioch Electric Railway.

Trains begin running on regular
schedule Monday, April 7.

Buy a little ranch.

Your rent will pay for it.

Raise your own vegetables.

Raise your own berries.

Raise your own fruits.

Raise your own nuts.

Raise your own chickens.

Keep your position in the city and
live in this country.

Cut your living expenses.

Live better; live happier.

A little ranch in this country means your
independence.

Your market is a million people living
in the bay cities and within one hour's
ride of our lands.

If you are looking for a good, paying
ranch property, or if you are looking
for an ideal place to live, investigate our
lands.

Information gladly furnished.

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WIND POWER

for pumping is uncertain—hand power
for sawing is drudgery—both are slow
and expensive. A

Rumely-Olds Engine

will give you power at low cost. You
save a lot of time and work, and power
is ready when you want it. Then your
Rumely-Olds is ready for a hundred
jobs—an every-day money-maker. Easy
to run—easy to handle—comes portable,
stationary or skid-mounted—1½ to 65
h.p. A small size attached to a

Rumely Pump Jack

pumps water for you at low cost, quickly,
and when you want it. Then hitch it to a

Rumely-Olds Saw Rig

and lay in a handy supply of wood in
spare moments. You can't imagine
how many ways you can use this engine
till you have one.

Send for Data-Books—on the Rumely-Olds
Engine, No. 344; on Rumely-Olds Saw Rigs,
No. 461; on Rumely Pump
Jacks, No. 436—ask the name
of our nearest dealer.



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Spokane Pocatello or La Porte, Ind.



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Chemical and Bacteriological Anal-
yses, Soils, Waters, Feeds, Dairy
Products.

Mortimer Fleishacker. The deal is thought to be a part of other transactions in which a total of more than 90,000 acres of land is involved.

The Santa Paula ranch in Kings county may be made into a great stock ranch, with fine horses and mules as a leading feature. A part of the acreage is to be put out to alfalfa and grain.

Mark Bassett, the Poland-China and Percheron breeder of Hanford, has purchased the four-year-old stallion Ithos,

one of the finest Percherons ever brought to the Coast. He was a prize-winner at the International in 1912 in the strongest ring of four-year-olds ever shown in Chicago.

Dairy Happenings.

J. S. Canham, State Dairy Bureau inspector for the southern San Joaquin, has had a number of West Side dairymen convicted for various violations of the law recently. The reasons for conviction were selling the milk of cows too recently freshened and using separators without washing same.

The Central Creamery Co. started purchasing cream in the Riverdale territory April 1. The cream is being handled through the Lemoore, Kings county, plant.

It is stated that the milk of sheep on the J. H. Glide ranch, near Dixon, is being shipped to San Francisco for cheese-making.

The dairy business around Gridley, Butte county, is rapidly increasing. The monthly payroll to dairymen is about \$15,000.

Two live stock freaks were spoken of last week. Now there is a report of a third, a pig belonging to J. M. Setliff, Tulare, which has five toes on each fore-leg.

Raisin Association Arrives.

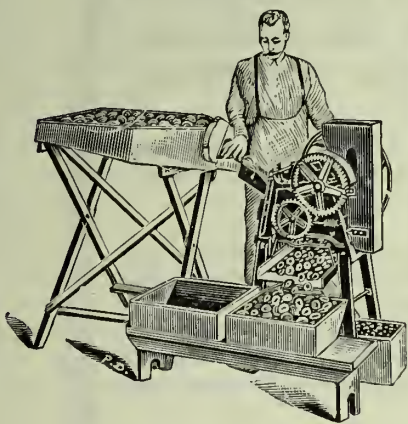
All doubt as to the permanence and activities of the California Associated Raisin Co., the great growers' organization formed to put the raisin industry on its feet, has been put at rest with the subscription of more than enough funds than were required to make the subscriptions binding. Many of the subscriptions were made with the proviso that \$750,000 or more was to be subscribed by April 1, 1913, and the operations of the company were conducted with a large amount lacking from this sum. At a mass-meeting at Fresno a few days before April 1, enough to make more than \$800,000 was sub-

scribed, and the company can now pursue its work unhindered. It has secured contracts upon 70% or better of the acreage in the State for the 1913 crop, and likewise is active in bidding up the price on the holdover crop now in the growers' hands. It is said that two packing-houses owned but not operated by the Farmers' Union may be purchased by the company, payment being made in stock, which will enable the company to pack any portion of the raisins owned by it that seems best. The prices of the 1912

crop of raisins seem to be picking up recently, owing partly to the strength of the company, a number of sales being made at 2½ cents and the market being stronger than before. One company is offering, for the 1913 crop, 4 cents for Thompsons, 3 cents for Sultanas, and 3 cents for Muscats.

E. E. Minton is to put out 20 acres to Queen olives in North valley, Fresno county. This is a big planting of this variety for the interior.

Improved Fruit Pitting Machines



Capacity:

APRICOTS, 1 ton per hour.
PEACHES (freestone), 2 tons per hour.

Write for Circular.

DOES THE WORK OF 15 MEN, GUARANTEED.

Berger & Carter Co.

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503 Mission St. San Fernando Bldg.

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In addition to listing and pricing a complete line of gates and valves for cement pipe irrigation, manufactured by us, it also contains some valuable information on water and irrigation subjects in general. A copy will be sent free upon application to any address.

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POMONA - CALIFORNIA

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PLOW YOUR ORCHARD DEEPER AND CULTIVATE IT CHEAPER

You need a power that will work each and every day that work is necessary. One that is not subject to the vagaries of the weather or the condition of the ground.

Round wheel engines have always been weak in the point of traction. The chief objection to tractors has been that the wheels would slip and stick in the mud and lose traction on soft soil.

If you have a knowledge of tractors you KNOW this to be true.

Yet how many tractor manufacturers have made an earnest attempt to improve this greatest of all weaknesses?

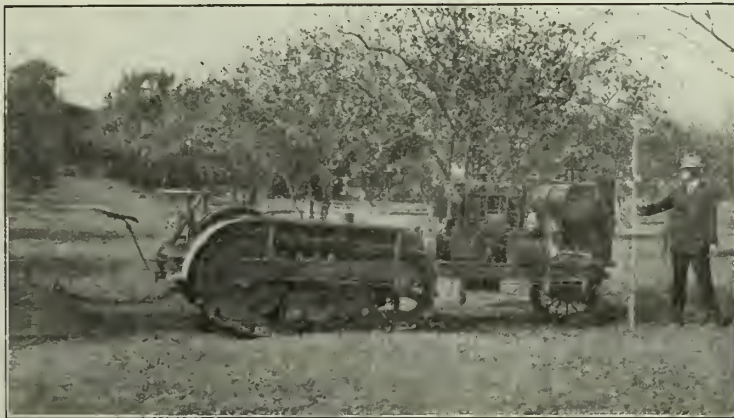
Only one and the Caterpillar is the result of that successful effort. Round wheel engine manufacturers today base their claims for superiority on a new type of carburetor, a new valve in the motor or a new frame construction.

All tractors nowadays should have a good motor and a good frame.

If they haven't, the manufacturer is careless or too "economical."

Good motors can be bought by anyone in the open market.

The traction, the supreme weak point of the wheel engine, has been overlooked by them.



Baby Caterpillar working in orchard. Turns in its own length.

URNS IN ITS
OWN LENGTH.

CATERPILLAR

WILL NOT BARK
THE TREES.

REG. U. S. PAT. OFF.

The Holt Manufacturing Company, Inc.

STOCKTON, CALIFORNIA

COUPON

The Holt Manufacturing Company, Inc.
Stockton, Cal.

Please send me literature describing the Caterpillar Gas Tractor and showing pictures of the machine in operation.

Name

Address

I farm.....acres of land.

The Home Circle.

A Widow's Catch.

When the busybodies of the little fishing clachan of Lochfruin beheld daft Jamie McPhail sitting below the stern of the time-and-tattered herring smack "Katie of Lochgoyle," and noticed that he was busy with brush and paint-pot, business for the nonce was suspended in consequence and house-pots and brushes forsaken till the mystery should be solved.

The coterie of matrons ensconced behind a dry-stone dyke talked long and excitedly, seeking a solution of the problem, and when Jamie's brush at last proclaimed in straggling fashion to the watching populace that the ancient boat was to sail under the license number of G. K. 4831—although nobody took exception to the fact that the angle of the figure four pointed west instead of east—light dawned upon old Betty Armour and she cried: "Ou ay, wives! The weedy Poole has no forgotten. That's her man's old number back again for shair. Ye mind that nicht we lifted his corp from the sands o' Doronckside, the tailboard o' the smack cam' ashore wi' him—ay-ay—puir man! A mind well the number wis 4831—an ill-faured, unlucky number say I. They'll no sail again wi' it, shairly!"

But next morning when Jamie was putting on the finishing touches with yellow paint and the "Weedy" and her sonsie daughter Meg were seen busy mending the old nets that had come forth from their hiding place in the cow byre, the verdict of the court of matrons was rendered in Betty's words: "Ye'll min' me noo! Weedy Poole's to stairt the boat the year wi' daft Jamie for skipper. Megysty me! Sic Havers! The body's clean daft, nae doot. The number 4831 maun sink them sairrin'."

Little, however, did the wise women of Lochfruin understand the thoughts that stirred the bosoms of the widow and her child as they toiled afresh at the work laid aside years ago when the remorseless tide threw Ben Poole's corpse high up upon the sands. They forgot how long it lay among the dank seaweeds, where the seapinks nodded their heads solemnly in rhythm to the mournful screaming of the gulls, until daft Jamie found it. They knew not of the heart-sores still unhealed that were rent that day when Jamie staggered into the cottage with his ghastly burden and exclaimed: "Janet Poole, a hae brocht ye yer man!"

Nor did they know of the stern battle the mother and daughter had fought with the world to keep up appearances in the village and send the many bairns well fed and clad to school. They took it for granted that her "man" had left "a fell wheen siller," but even Jamie, who never for a moment forsook the family that had sheltered him in brighter days, could have told in some sort of fashion, had he cared to do so, of days when hunger's pangs were stayed with "dulse" and mussels from the rock-pools of the bay; of days—yes, weeks on end—when "saut herrin'" had "saut herrin'" for sauce, and the oatmeal, even, was wellnigh gone in the girdle.

Do not think for a moment, either, that Meg's "lad" knew of these things, for such things are sacred to the proud "puir folk" of Scotland; and when on every Saturday night for seven long years he had entered the cottage with his customary remark, "It's a wee wild outside the bar the nicht," or "It's to be saft the morn," Meg blushing set forth upon the table some steaming tid-bit never tasted by the family. But then Donald

Moir was not just "guid in the uptak," though as honest and industrious as any young fisher lad in the district; and maybe that explains why no ring yet showed on Meg's plump finger—a fact that annoyed "Weedy" Poole sorely and led Meg to close many a wordy argument with "Gie him time, puir fellow—gie him time!"

Often before Ben Poole was drowned had the swain seemed close upon the question: but, as the old skipper lent but little encouragement to the suit, more time was taken, and since the burial day Donald hung back and went on as before, while Meg understood, sighed, hoped and waited.

The bairns were growing big lads and lassies now, and the "wee kale yaird" and "ae coo" no longer kept pace with appetites lustily nurtured by salt sea air and sturdy exercise. Something had to be done, and Meg it was who proposed one night that the old Katie of Lochgoyle should be launched once more and the fishing tried in some way or another.

Jamie took kindly to the work, and, with the strong women's assistance, shoved the old boat boldly into the waters of the bay. That was a launch to be remembered, for the Katie had forgotten how to swim. The cool waters gushed joyously into her sunburst cracks and she settled speedily and peacefully to the bottom, Jamie crying, "Let her bide!" This they did, for Meg advised, "Gie her time, puir thing, and the water'll swell her tight again!" And so it happened, for one fine morning the gunwales appeared above the surface, and Jamie stepped aboard, sinking her again, then commenced to bail out the loch with might and main, until the widow, laughing, cried, "Come oot o'er, ye gomeral, and gie her a chance to float!"

And so the work went on; and at last, with several coats of tar between her and the fishes, the Katie swam like a very dirty duck upon the bosom of the loch, becking and bowing to the ripples just as though her number were not G. K. 4831, or her shape a travesty upon modern smack loveliness of line. The old patched nets, with their tarred bladder-floats and corks, were piled high in the stern. The mast was stepped in style and the lug-sail set without sagging. Water-washed whinstones were taken aboard as ballast. The furnishings of the craft were complete, and Jamie, in oil-skins and so'wester stripped from the potato patch scarecrow, sat in dignity with the tiller in his hand as the widow and Meg came trampling tidwards over the glistening pebbles.

A proud man was Jamie that day; for it had not entered his head that he was not skipper of the Katie. But "pride goeth before a fall," and now was the time of his dejection. Majestically the widow Poole waded to the side of the smack and climbed aboard, Meg following with the long "sweeps" over her shoulder and a creel of provisions slung on her back. "Hooray!" cried Jamie. "Bonnie Katie! G. K. 4831!—Push off, Weedy!—Push!" But here his enthusiasm ended, for the widow siezed him by the neck and cried, "Oot ye go, Jamie! Gang hame and mind the bairns." And Meg had to help in the skipper's ejection, for he struggled and bawled, and as the smack got under way they left him standing up to his armpits in water, with salt tears coursing down his cheeks to join the ocean, and heard him cry till they were well-nigh out of sight, "Ye'll droon, Weedy! Ye'll droon! Try off Drumskaulie Point—Lots o' herrin'!"

But they did not "droon," and because they feared the ridicule of the fisher folk in the herring fleet, which was even then headed due south for the favorite fishing grounds of Kirnbrodie Bay, they set their course for the point advised by



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Same room finished in one of many beautiful designs possible with BEAVER BOARD walls and ceilings.

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It costs less; is more quickly and easily put up; is durable, sanitary and artistic.

It will not crack, chip or deteriorate with age; it deadens sound, keeps out heat and cold, retards fire, and withstands strain or vibration.

Made entirely of selected woods, reduced to fibrous form and pressed into panels of uniform thickness, with handsome pebbled surface.

We furnish all convenient sizes for every purpose, with full directions for application. Can also supply small quantities for making many useful and decorative household articles.

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In buying direct from us you not only save the middleman's profit but you get the finest quality tea obtainable. We have three branches at

Colombo, Ceylon; Foo Chow, China; Yokohama, Japan.

Dalmoy Blend—The choicest tea the world produces, 75c per pound, postage paid.

London Blend—A delicious tea, second only to Dalmoy Blend, 50c per pound, postage paid.

Sa-Sa-Ma—A very high grade Japan Tea, 60c per pound, postage paid.

PACKED ONLY IN ABSOLUTELY AIR TIGHT TINS

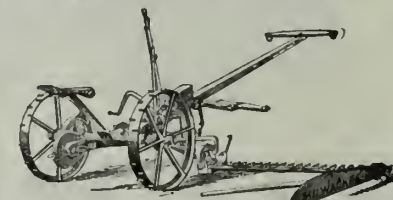
Send all orders with remittance to our Distributing Depot for the United States

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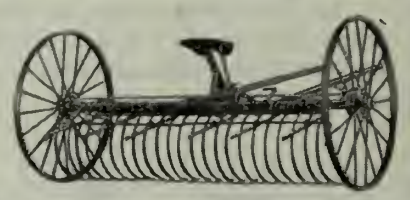
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MILWAUKEE MOWERS AND RAKES



CHAIN OR GEAR DRIVE
4½, 5, 6, and 7-ft. Sizes.
The lightest and easiest running mower made.
Better now than ever.



8, 9, 10, and 12-ft. sizes.
Heavy Mountain Wheels.
Double Coll Teeth.
A rake with more improvements than any other.

You can depend on us for repairs when you need them.

SOLD BY

THE H. C. SHAW COMPANY

GENERAL AGENTS.

STOCKTON, CAL.

Jamie, although Meg remarked, "Faither aye said he caught naethin' but dog-fish there."

Little cared they for the jibes and jeers which well they knew the old wives ashore were sending after them as note was taken of the Katie's erratic course. Their minds were set on victory, and their nostrils drew in the bracing air, redolent of the sweet scents of the bog-myrtle and the heather as they plied willingly at their unwonted task. And shall it be told, that as the anchor found the pebbles on the bottom off Drumskaulie Point Meg knelt upon the ballast stones while her mother raised her voice in the still air of the gloaming to the Father of the "faitherless bairn," and prayed that He might direct them to let down their net upon the right side and that it might be filled with fishes.

Through the long night they toiled, and many were the alarms that met them in the solemn stillness, but their net at last was struck by a shoal of herring and work commenced in earnest. Soon a glittering mass of silvery-sided fish shimmered below the thwarts in the moonlight; yet still were there more to take. Overboard went the ballast stones. The mast followed, and was tied behind the stern. The net was stripped again, then left anchored to its buoys. And as the dawn of morning commenced to tinge the hills with softest pink, slowly and carefully rowed the tired women toward the shore. The purple lapping waves ripped laughingly against the bulging sides of the ancient Katie, and now and then splashed overboard among the leaping fish that filled her almost to the gunwale. But the women rowed on undaunted, and the sea in sympathy stilled its anger that at its slightest ebullition would have swamped the boat. And so, quietly and cautiously, they made their way towards the clachan pier, where already they beheld the rest of the fleet arriving ahead of them. Nearer and nearer they came, and now Meg cries "Yon's Jamie!" and his voice reaches them shouting, "Gang slow!—Gang saft-

ly!—Ye're droonin'—nae skipper—G. K. 4831!" And need we describe the surprise of Donald Moir, whose hand it was that first caught hold, then aided a hundred others in drawing the heavy-laden smack up to the pier?

"G. K., leds!" yelled Jamie. "Fower thousand aicht hunner and thairty-wan crans (barrels), and no anither man amoung ye has a herrin'!" at which the old wives and fishermen cheered, then speedily beached the wondrous catch.

The number of "crans" was very much less than Jamie in his ecstasy claimed, but realized a sum which would do much to relieve the widow's poverty, and luck was yet to favor her—but shall we call it luck?—for next evening the fishing fleet stole away an hour earlier than usual and steered for Drumskaulie Point, much to the chagrin of the widow; but as Jamie pushed the doughty Katie out to set he shouted, "Mind what a tell ye!—Mind noo!—Try Kirnbrodie Bay!" And so they did, and once more came the old Katie home in the morning filled to the brim with the herring that had returned to their wonted feeding place.

This was a victory indeed, and Donald puzzled over it all day among the hills behind the clachan. Then he donned his Sabbath clothes, hesitatingly ascended the little pathway to the widow's cottage, entered the door and remarked:

"It's braw and calm outside the bar, Meg; and—and—Meg—will—ye—be ma skipper?"

The bells pealing from the steeple of the clachan kirk a week later sang to the world that Meg's fishing days had ended happily.—Dr. A. S. Alexander.

Strength.

Visitor—I wonder where that horrid odor comes from. It can't be the stock-yards, because the wind isn't blowing from that direction.

Native—That wouldn't make any difference, mister; when that smell starts on its travels there's no wind that can stop it.—Chicago Tribune.

Elated.

"Evidently the market has been going your way."

"No; I never speculate."

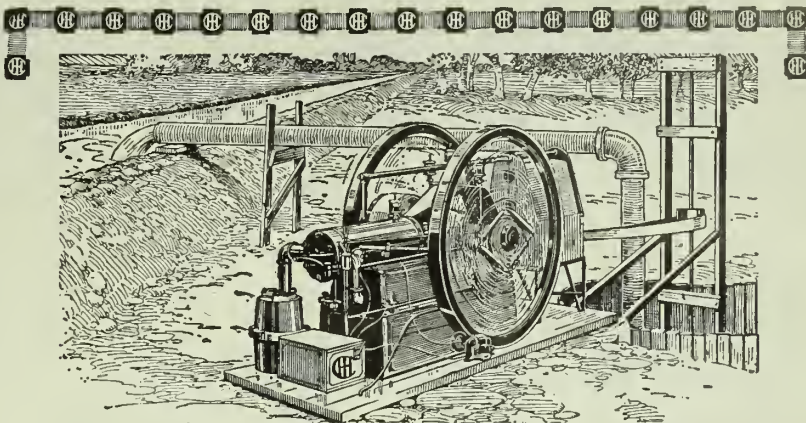
"What is it, then? You seem to be particularly cheerful."

"My wife has just consented to burn

the letters I wrote her before we were married."—Chicago Record-Herald.

"Why do you want a new trial?"

"On the ground of newly discovered evidence, your honor. My client dug up four hundred dollars that I didn't know he had."—Louisville Courier-Journal.



Insure the Right Amount of Water

GROWING crops by irrigation is a success or failure according to your ability to get the correct amount of water on the ground at the right time. One sure way to provide the right amount of water at the right time, is to install an independent irrigating plant run by an

I H C Oil and Gas Engine

An I H C engine will also furnish power to run a feed grinder, cream separator, or any other farm machine.

I H C general purpose engines are built in every approved style—vertical, horizontal, portable, skidded, and stationary, air-cooled and water-cooled; in all sizes from 1 to 50-horse power. They are equipped to run on gas, gasoline, kerosene, distillate, or alcohol, enabling you to use the fuel which is cheapest or most convenient. Tractors are made in 12, 15, 20, 25, 30, 45, and 60-horse power sizes, suitable for use on large farms or small.

There is an I H C local dealer near you who carries these engines in stock or can get one for you. Also, he will always be able to provide any necessary repair parts promptly. Get catalogues and full information from him, or, write the nearest branch house.

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Neatly Painted Wagons and Implements Are Evidence of Your Prosperity

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Old Mission Paints—for every need—are recognized Standards.

Ask your dealer for color cards. He sells Old Mission Paints. If he can't supply you, write us, mentioning his name, and we will see that you are supplied promptly.



THE MARKETS.

San Francisco, April 2, 1913.

(Unless otherwise noted, quotations represent prices paid to the growers.)

Cereals.

WHEAT.

This market remains inactive, trading being mostly of a small jobbing nature. Supplies are ample, but prices are firmly maintained on about the former basis, in sympathy with conditions in the north.

California Club	.....\$1.57 1/2 @ 1.60
Sonora	.....Nominal
White Australian	.....Nominal
Northern Club	.....1.57 1/2 @ 1.60
Northern Bluestem	.....1.65 @ 1.70
Northern Red	.....1.57 1/2 @ 1.72 1/2

BARLEY.

Choice feed is a little higher than last week, though the market is rather quiet, with buyers disposed to await further rains. Holders, however, are quite firm in their views at present.

Brewing and Shipping	.....Nominal
Choice Feed, per ctl.	.....1.35
Common Feed	.....Nominal

OATS.

Both red and white feed grades show a wider range, the former being easier and the latter higher. The only demand of any consequence is for white.

Red Feed	.....\$1.65 @ 1.85
Seed	.....2.00 @ 2.10
Gray	.....Nominal
White	.....1.55 @ 1.60

CORN.

Prices on Eastern grades have been marked up a little, in response to Eastern quotations just received, but there is little movement here. First-class California corn might bring an advance, but there is very little coming in. Kaffir and Egyptian are unchanged.

Cal. Yellow	.....\$1.45
Eastern Yellow	.....1.45 @ 1.55
Eastern White	.....1.45 @ 1.55
Kaffir	.....1.50 @ 1.55
Egyptian	.....1.70

RYE.

Prices are quoted a little lower, but there is hardly enough trading to establish definite values.

Rye, per ctl.\$1.40 @ 1.45
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BEANS.

Bayos, per ctl.\$3.25 @ 3.45
Blackeyes3.15 @ 3.25
Cranberry Beans4.70 @ 5.00
Horse Beans2.25 @ 2.35
Small Whites	.....4.65 @ 4.75
Large Whites	.....4.35 @ 4.40
Limas	.....5.40 @ 5.50
Pea	.....Nominal
Pink	.....3.70 @ 3.90
Red Kidneys	.....4.00 @ 4.25
Mexican Red	.....4.00 @ 4.20

SEEDS.

Alfalfa	.....15 @ 17 c
Broomcorn seed, per ton	.....\$27.00 @ 28.00
Brown Mustard, per lb.	.....3 1/2 c
Canary	.....6 @ 6 1/2 c
Hemp	.....3 c
Millet	.....2 1/2 @ 3 c
Timothy	.....Nominal
Yellow Mustard	.....Nominal

FLOUR.

Prices continue at the same level as for some time past, the movement being about as usual at this season.

Cal. Family Extras	.....\$5.60 @ 6.00
Bakers' Extras	.....4.60 @ 5.20
Superfine	.....3.90 @ 4.10
Oregon and Washington	.....4.90

Hay and Feedstuffs.

HAY.

The week's arrivals have been even smaller than for the week previous, and while this market remains very quiet, with small consuming requirements, the limited receipts have caused a firmer feeling in prices. Strictly first-class wheat and oat hay, and the best offerings of alfalfa and stock hay, are quotably higher. Users of hay are buying as little as possible and saving feed in every way possible. Dealers, however, look for larger offerings and a return to the old prices in the near future. Crop conditions are said to vary greatly in different districts, being very poor in some places, but satisfactory in others.

No. 1 Wheat, or Wheat and Oat	.....\$18.00 @ 21.50
do No. 2	.....15.00 @ 18.00
Lower grades	.....12.00 @ 14.50
Tame Oats	.....15.00 @ 20.00
Wild Oats	.....12.00 @ 16.50

Alfalfa	.....10.50 @ 14.00
Stock Hay	.....9.00 @ 11.00
Straw, per bale	.....35 @ 75c

FEEDSTUFFS.

Rolled barley and oats and cracked corn are quoted a little higher, in sympathy with the grain market, but bran, shorts and middlings are again lower, with ample supplies and no very urgent demand.

Alfalfa Meal, per ton	.....\$19.00 @ 20.00
Bran, per ton	.....23.50 @ 24.50
Oilcake Meal	.....34.00 @ 35.00
Cocoanut Cake or Meal	.....Nominal
Cracked Corn	.....32.00 @ 33.00
Middlings	.....32.00 @ 33.00
Rolled Barley	.....28.00 @ 29.00
Rolled Oats	.....34.00 @ 35.00
Shorts	.....27.00 @ 28.00

Garden Truck.

VEGETABLES.

The onion market is in very poor shape, both local and Oregon stock being quoted a little lower. Some Australian onions have come in, and are held much higher than local offerings. The principal feature in garden truck is the heavy increase in asparagus arrivals, which for a time were comparatively light. Tuesday's arrivals in the bay cities amounted to about 10,000 boxes, said to be the largest day's shipments in some years. This has naturally broken the price, and from now on low values are expected. The canneries are now starting up, and are expected to prevent any very heavy surplus, but their buying is not likely to bring prices up appreciably. The output of rhubarb is below normal for this season, and values have been marked up again, while green peas are steadily maintained, any surplus lots being taken for shipment. Tomatoes are scarce, a few from Florida bringing extreme prices. Celery is very plentiful and lower, while southern lettuce is a little higher at the inside figure.

Onions: River, Yellow, ctl.	.....50 @ 60c
Oregon, per lb.	.....65 @ 75c
Garlic, per lb.	.....1 1/2 @ 2c
Tomatoes, per crate	.....\$5.00
Cucumbers, per doz.	.....1.25 @ 1.50
Cabbage, per ctl.	.....40 @ 50c
Carrots, per sack	.....75c
Cauliflower, per doz.	.....65 @ 75c
Celery, crate	.....50c @ 1.00
Rhubarb, box	.....1.25 @ 1.65
Mushrooms, lb.	.....15 @ 25c
Artichokes, doz.	.....30 @ 75c
Sprouts, lb.	.....6 @ 7c
Green Peppers, lb.	.....20 @ 30c
Lettuce, crate	.....1.00 @ 1.25
Green Peas, lb.	.....7 @ 9c
Asparagus, box	.....75c @ 1.25

POTATOES.

This market continues weak and dull, with some stock from the southern coast district offered at lower prices. New potatoes find a very fair demand, but are somewhat lower on increasing arrivals.

River Whites, ctl.	.....30 @ 50c
Salinas, ctl.	.....75c @ \$1.10
Oregon, ctl.	.....50 @ 65c
Sweet Potatoes	.....2.25 @ 2.50
New Potatoes, lb.	.....4 @ 5 1/2 c

Dairy Produce.

POULTRY.

Everything in the poultry line is still very firm. Some stock is arriving from the East, but not much, and this consists mostly of hens.

Large Broilers, per lb.	.....30 @ 32 c
Small Broilers, per lb.	.....30 @ 35 c
Fryers, per lb.	.....25 @ 27 c
Hens, extra, per lb.	.....18 @ 20 c
Hens, large, per lb.	.....17 @ 19 c
Small Hens, per lb.	.....17 @ 18 c
Old Roosters, per lb.	.....10 @ 12 c
Young Roosters, per lb.	.....22 @ 25 c
Squabs, per doz.	.....\$ 3.00 @ 3.50
Geese, per pair	.....1.50 @ 2.00
Ducks, doz.	.....4.00 @ 6.00
Turkeys, dressed	.....22 @ 24 c

BUTTER.

The market has taken a little drop this week, as arrivals have been larger than for some time past, with indications of further increase, while the shipping movement, which has held up the market before, has dropped off. Local trade, however, is active, and values are firm at the present level.

Thu. Fri. Sat. Mon. Tu. Wed.	
Extras	...36 36 1/2 36 1/2 37 34 1/2 34 1/2
Firsts	...35 35 35 36 1/2 34 34

EGGS.

With rather light arrivals the first of the week, prices have gone up a cent and are fairly firm as quoted, as storage



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operators seem willing to buy at these figures. The general movement continues active, with large arrivals the rule.

Thu. Fri. Sat. Mon. Tu. Wed.	
Extras	...18 18 18 19 19 19
Firsts	...17 1/2 17 1/2 17 1/2 18 18 18
Selected	
Pullets	...16 16 16 17 17 17

CHEESE.

Offerings continue to increase, and prices are lower. Flats are only steady at the decline, while Y. A.'s continue weak.

Fancy California Flats, per lb.	.....14 c
Firsts	.....13 1/2 c
New Young Americas, fancy	.....17 c
Monterey or Jack Cheese	.....15 @ 16c

Deciduous Fruits.

So far this week local trading in ap-

ples has been light, though the demand is improving a little now and the remaining local stock consists mainly of Newtowns. These find strong competition from northern red varieties, of which a good many are coming in, selling at lower prices than before.

Apples: Fancy Red, box	.....65c @ \$1.00
Bellefleur	.....65 @ 90c
Newtown Pippins, 3 1/2 to 4-tier	.....75c @ 1.35
Common	.....40 @ 60c

Dried Fruits.

The situation shows little change since last week, but the market is gradually working into better shape. There is no very active demand, but Eastern buyers are showing a little more interest. The principal feature at present is the crop

outlook. Packers do not anticipate any change in spot prices unless there is a bad frost, but the rather uncertain prospect causes a little firmer feeling everywhere. Frost damage so far has been small, but some districts still need rain, and holders are in no hurry to sell until conditions are better known, while packers are keeping a close watch on weather developments. The New York Journal of Commerce says:

"Locally the market for California prunes present no new features. The demand is on the hand-to-mouth order and is chiefly for 40s, which, as has been previously pointed out, are scarce in all positions and held at a stiff premium.

"The raisin market on the spot shows no improvement, though there is a better undertone, due to the improvement in sweatbox conditions on the Coast based on the action of the Associated Raisin Co. in buying up growers' present holdings at half a cent above the best price the commercial packers had been bidding. There is a limited demand for spot peaches and apricots in lots as needed for current use."

Evap. Apples, per lb..... 3@ 4c
Apricots Nominal
Figs: White Nominal
Black Nominal
Calimyrna Nominal
Prunes: 4-size basis..... 2 1/4 @ 4 c
(Premium: 1c for 40s-50s; 2c for 30s-40s.)

Peaches 3 1/2 @ 4 1/2 c
Pear 4 @ 7 c
Raisins—
Loose Muscatels in sweatbox 2 1/2 @ 2 1/4 c
Thompson's Seedless..... 5 c
Seedless Sultanas 3 @ 3 1/2 c

Citrus Fruits.

The Eastern auctions report higher prices for oranges and lemons on good stock. Owing to small shipments of lemons, the Italian stock has the run of the markets. Good navels are reported as bringing better than \$5 per box, and lemons up to \$6.50. Shipments from southern California last week were 370 cars of oranges and 51 cars of lemons. North of Tehachapi has sent so far for the season 2,336 cars of citrus fruit.

As oranges that were frosted are now pretty well out of the way, the packing-houses are sending out good fruit and are active in most districts. What the valencia crop will amount to is a question, some growers reporting their trees as being well loaded, while others report a very small crop.

The San Francisco demand in this line is fair, though the movement fluctuates considerably from day to day. Oranges remain firm, and lemons and grapefruit are very scarce, resulting in a further advance. Limes are still offered at the former high prices.

Oranges, per box—

Navels, good to fancy....\$ 2.00@ 4.00
Frosted 75c@ 1.25
Grapefruit, seedless 2.00@ 5.00
Lemons: Fancy 6.50@ 7.50
Choice 5.50@ 6.00
Lemonettes 5.00@ 6.00
Limes 8.00@ 8.50

Nuts, Honey, Hops, Etc.

NUTS.

Almonds—
Nonpareils 17 1/2 c
I X L 16 1/2 c
Ne Plus Ultra..... 15 1/2 c
Drakes 12 1/2 c
Languedoc 11 1/2 c
Hardshells 8 c
Walnuts, 1912 crop—
Softshell No. 1.....16 @16 1/2 c
Hardshell No. 1.....15 @15 1/2 c
No. 2 10 1/2 c
Budded 17 c

HONEY.

Fancy grades continue to find a ready demand in this market, and supplies are kept pretty well cleaned up, as little is offered for shipment from other points.

Comb, white15 @16 c
Amber11 @12 c
Dark 9 @10 c
Extracted, white 8 @10 c
Amber 6 1/2 @ 7 c
Off Grades 5 @ 6 c

BEESWAX.

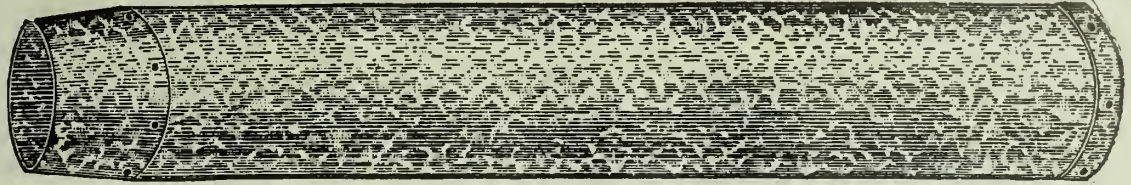
Light32 @33 c
Dark26 @28 c

HOPS.

There is not much activity in this vicinity at present, as very little of the old crop remains, and future values have not been established.

1912 crop12 1/2 @21 c

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Live Stock.

The most interesting development of late was the arrival of a large consignment of dressed meat from Australia, with the announcement that it would be sold at low prices. This has so far had no effect on the local market. The only changes in quotations are a 1/4c drop in live wethers.

Steers: No. 1 7 1/4 @ 7 1/2 c
No. 2 6 1/4 @ 7 c
Cows and Heifers: No. 1.... 6 1/4 @ 6 1/2 c
No. 2 5 1/2 @ 6 c
Bulls and Stags..... 2 1/2 @ 4 1/2 c
Calves: Light 7 1/2 @ 8 c
Medium 7 @ 7 1/2 c
Heavy 5 1/2 @ 6 c
Hogs: Grain-fed, heavy..... 8 1/4 @ 8 1/2 c
150 to 250 lbs..... 8 1/2 @ 8 3/4 c
100 to 150 lbs..... 8 1/4 @ 8 1/2 c
Prime Wethers 5 3/4 @ 6 c
Ewes 5 @ 5 1/4 c
Lambs: Suckling 7 1/2 @ 8 c

DRESSED MEATS.

Steers 11 1/2 @12 c
Heifers 11 @11 1/2 c
Veal, large 10 @11 c
Small 12 @13 c
Yearlings 12 @12 1/2 c
Mutton: Wethers 11 1/2 @12 c
Ewes 10 @10 1/2 c
Suckling Lambs..... 15 @16 c
Dressed Hogs 12 1/2 @13 c

WOOL.

Prices have not been made yet on any of the spring clip but southern mountain, but buyers are taking some interest in other clips and purchases will probably be made soon. The market, however, is quiet.

Spring clip:

Southern mountain, free... 9 @12 c

HIDES.

The hide market shows a little more firmness all around, but sheepskins are very weak and dull, in sympathy with the wool market.

Heavy Steers, over 56 lbs. 14 c
Medium 13 c
Light Steers, under 48 lbs. 12 @13 c
Heavy Cows, over 50 lbs.. 12 @13 c
Light Cows, 30 to 50 lbs.. 13 1/2 c
Kip 14 @15 1/2 c
Veal 17 @18 1/2 c
Calf 17 @18 1/2 c
Dry—
Dry Hides 24 @25 c
Dry Kip, 10 to 15..... 24 @25 c
Dry Veal, 5 to 10..... 29 c
Dry Calf, 7 down..... 29 c

HORSES.

Most of the stock offered at recent auctions has been unbroken, and while the sales were well attended, only a few exceptionally good horses brought out much response. Values realized were not as good as in the previous sale, and hardly up to the usual quotations. Much better figures are expected, however, on this week's offerings, which include a fine lot of heavy drafters from northern California.

Heavy drafters, 1700 lbs. and over\$300@350
Light Drafters, 1500 to 1650.... 250@285
Chunks, 1350 to 1500 lbs..... 200@250
Wagon Horses, 1250 to 1350.... 180@225
Delivery Horses, 1050 to 1250... 125@150
Desirable Farm Mares..... 100@125

MULES.

1200 lbs.\$200@250
900 lbs. 75@125
1100 lbs. 150@200
1000 lbs. 125@175

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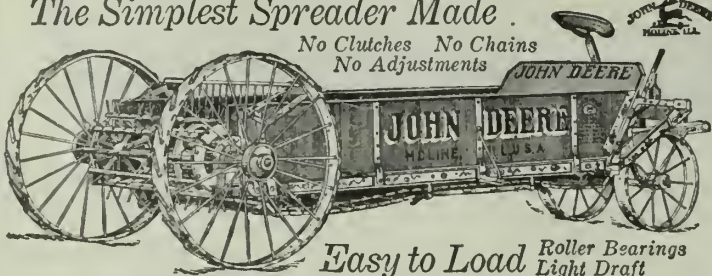
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John Deere Spreader

The Spreader with the Beater on the Axle

The Simplest Spreader Made

No Clutches No Chains
No Adjustments



Easy to Load Roller Bearings
Light Draft

Decided Improvement in
Spreader Construction

Up to this time every spreader on the market has been constructed along the same general lines.

The John Deere Spreader, however, is different. It is entirely new and there is nothing else like it on the market.

All the working parts are mounted on the main axle. There are no strains and stresses on the sides or frame and no clutches or chains to give trouble.

The John Deere Spreader is low down, easy to load, very simple, and always ready for business. It cannot get out of order.

Beater on Axle

All the working parts on the John Deere Spreader are mounted on the rear axle. There are no independent studs or shafts to give trouble, nor chains or sets of gears to get out of order. All strains and stresses are borne by the main axle and are not transmitted to the side of the box or the frame of the spreader.

Power to drive the beater is taken from the rear axle and operates through a planetary transmission (similar to that used on automobiles) mounted on the rear axle within the beater.

Light Draft—Few Parts

There are at least two reasons why the John Deere Spreader is the lightest draft spreader made. One is that it has four sets of roller bearings; two in the front wheels and two on the main axle and beater. They reduce the draft materially.

Another reason is that the John Deere Spreader has so few parts. It has about 150 less types of castings than the simplest spreader heretofore made. It is only natural that the fewer parts a machine has, the easier it will operate.

When the John Deere Spreader is out of gear, it is simply a wagon.

Easy to Load

The first three feet manure is lifted with an ordinary spreader are easiest of all. The real hard work is from this height to the top of the ordinary spreader.

The John Deere Spreader is low down. It is only necessary to lift each forkful

three feet. Thus, the hard work of loading a manure spreader is done away with.

Besides, the person doing the loading can see inside the spreader at all times. Each forkful is placed exactly where it is needed.



Easy to Load

No Adjustments

On the John Deere Spreader no adjustments are necessary. On the simplest spreader heretofore made, it was always necessary to make from ten to twenty adjustments before the machine would work at all.

John Deere Spreader is thrown in gear by moving a heavy dog back until it engages a stop at the rear of the machine. No clutch used.

Positive Non-Racing Apron

By the use of a very simple locking device inside the ratchet feed, the apron is positively locked against racing when spreading up hill or over exceedingly rough ground. The result is that when spreading with the John Deere Spreader the manure is always spread evenly. This is not possible on any other ratchet feed spreader made.

Change of Feed

Change of feed is accomplished by a double shoe which is moved from the seat. This shoe determines the number of teeth the ratchets engage at each stroke. The John Deere Spreader has a variation of from five to twenty-five loads to the acre.

Substantial Steel Frame, Like the Modern Railway Bridge

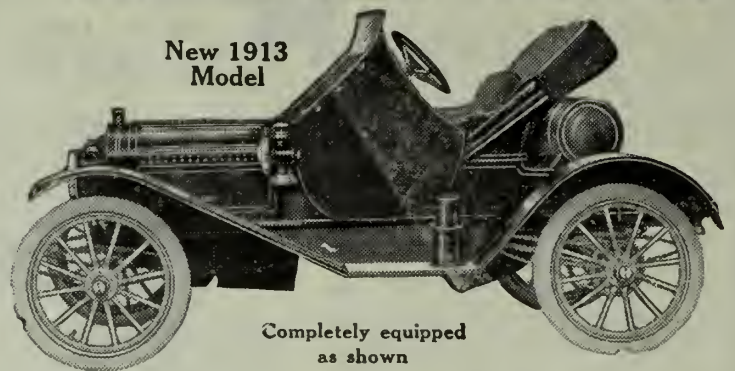
Both the side sills in the John Deere Spreader are of high carbon channel steel with the channels turned to the inside. Into these hollows are fitted four large wooden cross sills. Being bolted, these cross sills can be kept tight, insuring rigidity and alignment of frame at all times.



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Model

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as shown

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1. It will climb without effort a long 20% grade at 12 to 15 miles per hour from a standing start, and will hold a level road at 50 miles per hour.
2. It is the safest car to operate, it being possible in an emergency to throw in the reverse while rapidly descending the steepest grades, without the least injury to the car, and also possible to stop the car while either ascending or descending the steepest grades, with both engine and brakes out of commission; in other words, should both engine and brakes suddenly become useless at the same moment the car would still be under easy control.
3. It is the most simply constructed car manufactured to date, having no coils, no battery, no spark advance, no universal joints, no fan, and no transmission gears, thus sidestepping a long train of troubles inherent to nearly all other makes of cars.
4. It has a dead rear axle, the wheels turning on it as in an ordinary wagon, and the power is transmitted by two noiseless chains to the wheels, as it should be, to obtain the maximum efficiency.
5. It is remarkably accessible as regards all essential parts, and is therefore particularly suited to the man desirous of making his own repairs, which may be done with hand tools without recourse to any shop. Replacement parts are unusually inexpensive and may be put in place by anyone of plain ability, and if the owner does not wish to do the work himself he can easily form a reliable estimate of what the work should cost.
6. It is an economical car in the strict sense of the word; 20 to 35 miles to one gallon of gasoline, and 100 miles to one pint of oil. No transmission grease. Tires cost \$12.50 each and last from 6000 to 10,000 miles.
7. It is easy riding in fact as well as in theory, having four full elliptic springs that will permit you to take long drives over rough roads with an ease truly surprising for a small car.
8. It has pretty lines and is comfortable, but there is no needless display of luxury in upholstery—the money having been spent in the engine, frame, magneto, wheels and other essential parts of the car.
9. It is a car that as far as "getting you there" rapidly and safely is just as much in the big car class as any \$5000 automobile. It has solved the problem of quickly and comfortably transporting from one to three people at a low initial outlay and nominal cost of up-keep and operation.
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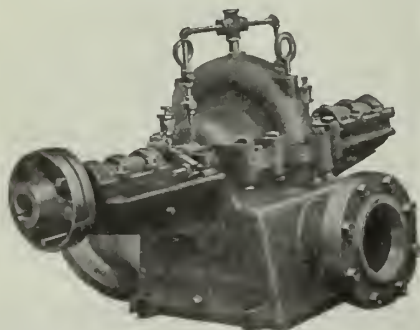
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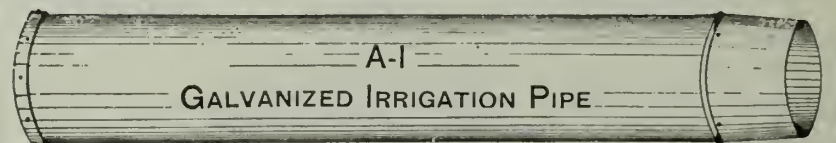
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311 CALIFORNIA STREET, SAN FRANCISCO

THE PACIFIC RURAL PRESS

Vol. LXXXV. No. 15.

SAN FRANCISCO, SATURDAY, APRIL 12, 1913.

Forty-Third Year.

Community Breeding May Check Diseases.

[Written for PACIFIC RURAL PRESS by J. C. LOOMIS.]

While being shown a large herd of pure-bred cows, about a year ago, a breeder stated that in his opinion contagious abortion was one of the most serious diseases confronting the dairymen of California today. Since that time the entire herd has been disposed of, and we have often wondered if it was possible that abortion was the cause of selling them.

Some authorities claim that abortion ranks in as serious a class as tuberculosis. At any rate, it is bad enough to receive a great deal more attention than is commonly given it. Everyone conversant with the subject admits that it is growing every year in this State, and a good many are wondering why.

In talking with a dairyman who has given the subject considerable thought, he gave his belief for the rapid inroads it has made in recent years, as follows:

As almost everyone knows, there has been a large increase in the dairy industry the past few years, with the result that cows of all kinds, good or bad, changed hands very rapidly. If a man bought, say, 30 head of cows, he would perhaps get one or more aborting ones in the herd. A good many who did not keep accurate dates of the bulls service upon the cows did not know whether their cows dropped their calves on time or not.

In this way perhaps a good many in his herd would become afflicted, and when finally he did begin to take notice it would be too late to guard against it, so there would be but two courses left open to him: either sell to the butcher for beef at from \$35 to \$45, or else dispose of them to some other unsuspecting dairyman for from \$65 upward.

Now, almost everyone is in the dairy business for the money, primarily, and if it comes to the point of losing from \$25 to \$50 by selling to the butcher, what is more natural than to hold a public auc-

tion sale and dispose of the undesirable ones along with a few good ones to sweeten up the sale? At this auction sale there are dairymen from all over the district, and perhaps from some other district, who want to increase their herds, others who want to get a start, etc. They purchase what looks to be a good animal, or perhaps several, and take them home, to still further spread the disease in their own herds; for there is no way of choosing between the good and the bad.

This practice has continued until a great many will not invest at these auctions unless they are absolutely sure that good, legitimate reasons exist for the sale.

Take, on the other hand, a few years ago: if a dairyman had an aborting cow, he was usually compelled to sell her to the butcher, as the demand was not nearly so great.

Whether the above statement is the real cause or not, we do not know; but the main source of worry now is how to control it, or rather keep it out of the herds.

As medical science has no positive cure for abortion, the only method of total eradication would be to sell to the butcher, but here the financial question enters again and puts its foot down.

In discussing the community breeding question with a small dairyman who runs his dairy in connection with an orchard, the question of abortion arose as an objection to that plan, and we give an outline of his plans below which, although perhaps weak in some places, has enough good points to warrant further investigation.

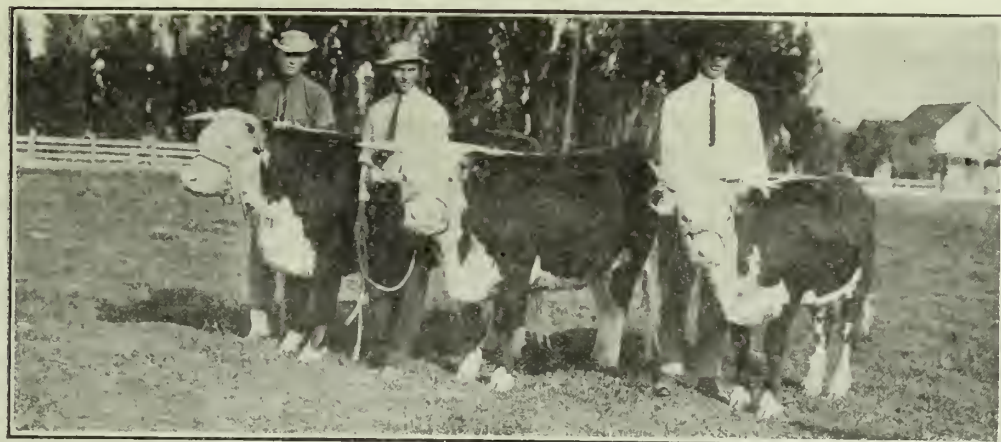
The plan is for a number of small dairymen who do not have a sufficient number of cows to warrant the purchase of a high-priced bull individu-

ally, to subscribe for stock and buy a first-class bull. So far the community breeding plan is carried out, but from this on changes would be incorporated to insure everyone a square deal.

When a man bought stock in the company he would be required to sign a guarantee that his herd was free from abortion, and that any cow bought from the outside, after joining, would not be bred to the bull until she had dropped one calf and proved she was all right.



Holsteins on a Sacramento Valley Pasture.



Prize Herefords and Students, University of Nevada.



Bunch of Angus at University of Nevada.

(Continued on Page 455.)

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CALIFORNIA WEATHER RECORD.

The following rainfall and temperature record is furnished the PACIFIC RURAL PRESS by the United States Department of Agriculture Weather Bureau, at San Francisco, for the week ending at 5 p.m., Apr. 8, 1913.

Stations.	Rainfall Data.			Temperature Data.	
	Past Week.	Seasonal to Date.	Normal to Date.	Maximum.	Minimum.
Eureka	1.66	35.19	39.85	60	38
Red Bluff .....	.76	16.30	21.96	72	40
Sacramento .....	.46	7.30	17.55	70	40
San Francisco .....	.58	11.30	20.08	62	46
San Jose .....	.20	5.40	15.08	72	34
Fresno	T	4.85	8.41	78	40
Independence...	.00	3.83	8.33	70	32
San Luis Obispo .....	.00	7.20	18.33	68	38
Los Angeles .....	.00	12.44	14.31	76	46
San Diego .....	.04	5.75	9.02	68	46

The Week.

Rolling clouds in the sky, rattling showers on the land and floods of warm sunshine over all—these are the weather for the week, and vegetation likes them all. A rush toward lushness has been made everywhere and field flowers of plain and foothill slope betoken by their exuberance the gladness of the people that late rains, which have traditional fame for making crops, are so widespread and frequent this year. As compared with the normal in the table above, this season's rains are, on the whole, scant; but, as compared with last year's precipitation, they are generous in most places, and their lateness heightens their efficiency. Why they are thus and so, is still a matter of conjecture and speculation. It is comforting to think that such inquiries are no longer considered impious even by those who are supposed to keep closest watch upon God's interests on earth. It may be even argued now, without danger of losing one's heavenly heritage, that the good Lord has given us weather to understand and account for if we can, and that unquestioning acceptance of it does not commend itself to Him. Otherwise, what does it mean that the pious priest of Santa Clara College, Father Ricard, is making the sun spots a basis for weather prophesy? Centuries ago it would probably have cost a man his life even to suggest such defects in the grandest material thing that God has made. A spotted soul was a tolerable thought because man let the devil blacken it, but that a glowing sun installed in the sky, in grandeur and isolation unapproachable, should be appraised by imperfect man as damaged goods—if a man should so think, it is seemly that he should think no more. Evidently, however, it is now proper that not only the strength of the sun, but the very weakness of it should be examined in relation to its bearing upon human affairs, and Father Ricard believes he has synchronized terrestrial storms with solar spots and has scheduled the latter so that this winter, to use his own words, "they have come on time like a transcontinental train." The common observer may hold that such trains are usually

"off time"—but pass that point; it only throws a few specks on the metaphor. The following is Father Ricard's storm schedule, which up to this date has proved reasonably true, and his own comments on the prophecy:

By the northern spots, our storms will appear March 26 to 30, April 1 to 4, 8 to 11, 15 to 17, 21 to 24, 27 to 30, May 4 to 7, 11 to 13, 18 to 20, 24 to 27, June 1 to 4.

By the southern, we get March 24 to 29, April 1 to 4, 7 to 11, 14 to 18, 21 to 24, 28 to May 1, May 4 to 7, 11 to 13, 18 to 22, 24 to 27, June 1 to 4.

"The agreement is almost perfect. It is safe to say that some of the foregoing depressions will affect the whole coast and yield a fair amount of precipitation. Up to mid-April, storms will again be dangerous. Attention is called also to disturbances of April 21 to 24 and 28 to May 1."

On this basis we proclaim Father Ricard the greatest storm spotter in the world, and we claim a just California pride in his achievement.

Predicting and Pre-cooling.

It may seem a little far-fetched, but the analogy between these terms is not merely the alliteration. It is, for instance, almost as important that Father Ricard should keep the right spots on the sun that Mr. Stubenrauch should be able to keep the wrong spots off the fruit. A most interesting feature of this issue is the page which describes the attainment in this line with the Bartlett pear. It is climatic, in a way, because different elevations, exposures and sea-distances in California exert such pre-heating and pre-cooling influences that our growers can turn out Bartletts at any reasonable late summer and autumn date which marketing makes desirable, without recourse to artificial ice plants and cold blasts, and we have not yet tested all our natural resources in holding back Bartletts. We hope the southern Oregon growers will go right along and dose themselves with Dr. Stubenrauch's prescriptions—three times daily; after meals, because then they will feel all the stronger to put up the money for it. Our assurance must be that whatever they make at it we can tack onto the end of our natural advantages and distance them, either earlier or later, as the opening may be. And it is also important that growers can henceforward to pre-cooling as they see fit, and not take the chill from the transportation outfits if they would rather shiver by themselves. It is announced from Washington that the right of shippers to pre-cool citrus fruits from California points to the East, which was sustained by the Interstate Commerce Commission, has been confirmed by the Commerce Court, which declined to issue an injunction against the commission's order.

Marvelous Heat Storage.

Those who enjoy speculation on properties of matter as related to agriculture may like to figure on whether the heat which is driven out of fruit, fruit boxes and fruit cars by the process of pre-cooling could not in some way be held and subsequently used for heating against frost. We admit it is a far cry, but if we have to figure on sun spots, other long-distance affairs should not be too appalling. The general question would be, why should we be wasting so much heat into the impenetrable ether, which we need so much in the lower strata of our own atmosphere? Why should we not hang onto the excess heat which we get from the sun when it is overhead so that we would not be so cold when the same sun is on the slant? Why should we spend so much money in generating artificial heat by all kinds of firing and then blow into the upper air all of it that is left after we get the small fraction of it which we call efficiency in any purpose for which we are firing? Our grandmothers did better, in a small way,

when they baked bricks and loaves together with the same fire—themselves to warm withal, without and within. The savage also was similarly acute when he spitted his meat over a fire which was at the same time heating cobbles with which he could boil water in a basket. Modern economies become profligacy when confronted with these primitive plans for conservation. But current events may indicate that we are returning to the standards of our grandmothers. We read in the daily journals that Professor Christy of the University promises to overcome the handicap in manufacturing which lies upon this State through absence of hard coal. He finds that with proper arrangement he can get 2800° to 3000° Fahr. from common lighting gas, and that he can hold on to it when he gets it, which is surely worth while. This is the account:

"In this process we employ the Siemen's regenerator furnace. We store the heat which escapes from the furnace in a regenerator which is simply a mass of loose bricks. Then every half hour we reverse the blast so that it goes through the hot material and brings the heat back to the furnace without loss.

"The temperature of the gases finally escaping from the furnace is lowered to such an extent that the pipe through which they pass becomes cold enough to be held in the hand. Thus all of the heat is utilized. In most furnaces the waste heat goes up the chimney.

"With this process we are enabled to produce a white heat—so white that it is blinding to the eye and colored glasses must be worn when looking at the fire."

Think about doing all that with street gas which we are apt to call bad names because we cannot read large print by the flame of it! And if all that can be done with poor gas for the manufacturer, why cannot someone do something greater for the farmer by using the glowing sun—if Father Ricard can knock the spots off from it? Take, for instance, the rocks of the encircling mountain rim of southern California: why not raise them to white heat in the blazing autumn sun so that the cold northers of December can carry the heat to the citrus mesas below, and this heat, rising like a balloon and moving northward by southwesterly winds, will crawl into the rocks again until a change in the wind sends it down again on its errand of mercy. This is certainly no worse a speculation than imaginative readers put up to us frequently for judgment. We are simply trying to protect ourselves from their heat by the old process of back-firing.

Three Thousand Degrees Too Little.

We could not understand why we were choosing such a hot lot of topics for comment this week until the telegrams came in about what the leaders of the new reform congress of the United States are trying to do to California industries. Now we see where Professor Christy's three thousand degrees can do most good, and if he only lands them aright we do not care if he never gets a degree back again. It is simply shameful that the work of two generations of Californians, laboring unceasingly and self-denyingly, to develop the unique industries of this part of the country and thus to gather nearly a world's possibilities of production under the American flag, should stand in danger of destruction for a moment in the interest of foreign producers of un-American standards and aspiration. California, in these products, has stood almost alone in the defense of Americans against the monopolists of the Mediterranean countries, who will be beating brass and firing guns over even the chance of our discomfiture, while their few unnaturalized representatives in this country will be wellnigh deified by their foreign clients, because they seemed to have the

power to reverse a national policy which removed from them control of American markets. Of course it is not done yet, and there is some chance in the fight which will be on at once, but this, in brief, is what the Congress, through its leading committee, proposes to do to California:

Wool and lumber will be on the free list; sugar will lose 25% of its duty and be free at the end of three years; lemons are cut from $1\frac{1}{2}c$ to $\frac{1}{2}c$; oranges are reduced from 1c to $\frac{1}{2}c$, a cut of one-half; prunes from 2c to 1c per pound; olives from 25c per gallon to 15c; unshelled almonds from 4c to 3c per pound, and shelled almonds from 6c to 4c; raisins are cut $\frac{1}{2}c$ per pound; apples, peaches, quinces, cherries, plums and pears from 25c per bushel to 10c; orange peel in any manufactured form, from 2c to 1c per pound; raw peel is free; unshelled walnuts, from 3c to 2c, and shelled walnuts from 5c to 4c. There is a big cut in nursery stock, ranging from 50 to 25%.

Other products of this State are treated in this way, per bushel: Barley malt, from 45c to 25c; buckwheat, from 15c to 8c; oats, from 15c to 10c; wheat, from 25c to 10c. Rice, cleaned, from 2c to 1c per pound. Butter, from 6c to 3c per pound. Cheese, from 6 cents a pound to 20% ad valorem. Beans, from 45c to 25c per bushel. Eggs, from 5c to 2c per dozen. Fresh vegetables, from 25 to 15%.

And what does the Congress propose to do for California? The accounts say that only two articles can be found in the whole bill which are admitted to be of any advantage to the Pacific coast. These are whalebone and lifeboats and life-saving apparatus. And surely California will need them, if they are not of the political kind. She ought to have had enough of that by this time. Whew, but it's a mighty warm day; we are hot under the collar!

Why Not Ask the Women to Do It?

The foregoing doleful facts seem to indicate that American men are making a bad mess of their ideas and treatments of American industries. They have come to count political successes of more importance than personal and collective prosperity. We read that in Washington the local section of the Woman's National Democratic League tonight will open tariff study classes at their headquarters. More than 125 women already have signified their intention to struggle with the mass of figures and data that have accumulated in the hands of the Ways and Means Committee. "And we won't confine our studies to millinery, furs, fur bellows, or feathers, either," said Miss Annette B. Paul, who will instruct the class. Many wives and daughters of Senators and Representatives in Congress are members of the league. The women will augment their class work by frequent trips to the Capitol to listen to the tariff debates. Our advice would be that the women pay less attention to the "fur bellows" which will pour forth hot air on this subject in the House of Representatives, and more to the real facts, which they may learn from observation and study of the real development of the country. We believe that the women are too honest to make free trade fallacies a political pretext and too acute to follow leaders who claim that such things are good for the country for the sake of political supremacy. A woman generally looks deeper into a thing than that and surely the present situation demands honesty and insight.

Queries and Replies.

Querists must submit full names and addresses.

"Shrub" and "Plant."

To the Editor: Will you give an opinion as to what constitutes the distinction between the

words "shrub" and "plant"? The dictionary fails to give satisfactory light on the subject.—R. S., San Francisco.

We cannot cite you definite authorities, but we are quite firmly convinced that although the term "plant" would cover everything from a violet to a fruit tree, when occasion arises for differentiation between the terms "shrub" and "plant," the term "shrub" would be applied to rather small growths of a woody character and which in their natural development did not reach sufficient height to be called trees. The height properly belonging to a shrub would normally be less than ten or twelve feet. Contrasting with this a "plant" would be a plant which makes only soft or herbaceous growth, reproducing such shoots from the root crown or lateral roots, and never attaining a woody texture in these shoots. Height cannot be prescribed for "plants" because some soft herbaceous stems rise higher than some woody stems. The only reason for prescribing height for a shrub is to differentiate shrubs from trees, both of which, of course, make practically the same character of woody growth.

Cowpeas for Summer Cover.

To the Editor: I find that there are various kinds of cowpeas in the market. In addition to this, I have heard that Mr. Briggs, who has been investigating the nematode has stated that he had found the Irin cowpea to be proof against this pest. Please give me your views as to which of the cowpeas would do best in the San Joaquin valley south of Porterville for summer crop, and such other data as might be of interest to me.—J. R., Visalia.

The cowpea which is most widely grown in California and which does well at the proper season of the year in the citrus district of the San Joaquin valley is the "blackeye bean." Another of the cowpeas is the whip-poor-will, which has been considerably grown in California. We do not know the cowpea mentioned by Mr. Briggs, but the universal success of the blackeye bean in California would indicate that it either does not mind the nematode or has not been brought into contact with it in this State. Which is the best legume for either summer or winter growth in the different districts of the State cannot be theoretically projected. It must be determined by local trial, and this is the reason why growers in one district are growing one legume and others in another district are choosing others. There is probably no such thing as the best cowpea.

What Can a Man Do?

To the Editor: In your opinion, is it possible for one man, of average strength, to take perfect care of a twenty-acre citrus orchard? Are the services of a man who takes the entire responsibility of an orchard (citrus) worth more than those of a common ranch hand?—G. W., Westlake.

It depends upon the man, upon the age of the trees, upon the kind of soil he has to handle, upon the irrigation arrangements and upon what you mean by "perfect care." If you contract the picking and hauling of fruit, the fumigation and allow extra help when conditions require that something must be done quickly, whatever it may be, a man with good legs and arms, and a good head full of special knowledge to make them go, can handle twenty acres and if he does it right you ought to pay him twice as much as an ordinary ranch hand.

Damping-off in Citrus Seed Bed.

To the Editor: I expect to plant two bushels of sour seed in beds three feet wide and cover lightly with the red soil, then cover one inch with clean sand. I will install the Skinner system of overhead sprinkling, so as to give the plants enough water, only in mist form, so as to watch for damping off. Is there not something in some of the patent manures that aids the

plants to resist the damp-off fungus?—H. D. Elmira.

The main agency for preventing damping off of seedlings is to maintain a dry surface of the seed bed; that is, a surface which will dry quickly after application of water, and this is attained by sanding, if the soil is inclined to be heavy. A certain small amount of lime may also be used to advantage, but one has to be careful with this material. To water thoroughly and not too frequently is a way of securing sufficient moisture below for the growth of the seedlings, and at the same time maintaining longer the dry surface condition which reduces danger from damping off. Your experience with mist spraying will be instructive. Theoretically we should choose a method which would take more water into the soil and less into the air—but we will see how you come out.

Mesquite and Maguey.

To the Editor: You will greatly oblige me by telling me where the "mesquite" tree or bush is growing and can be grown in California. Is it large or small, and does cultivation improve it? What is it good for, wood, pods, seed, etc., and the value or returns per acre, wild and cultivated? Is the "maguey" fiber plant a commercial success in California? What are its commercial possibilities in this State? How much cold does it and the mesquite stand?—E. P., Oakland.

The mesquite trees are found in the extreme southeast corner of the State, where we have borrowed a few from their main habitation in Arizona. It is possible that you can get from the Arizona Experiment Station at Tucson some descriptive information concerning the tree which would be interesting. We have never heard of propositions to utilize it by cultivation.

There is no maguey fiber grown in California. It is chiefly produced in the Yucatan region of Mexico. The plant grows well in California, it being, in fact, one of the century plants (agaves) which seem to be very hardy in our temperatures, except those in the higher mountains. There is no likelihood of commercial production at the present time.

For a Refractory Soil.

To the Editor: Please advise me what to do to soil that dries out and crusts over so hard that it won't permit vegetable growth. A liberal amount of stable manure has been applied, and the land deeply plowed, harrowed and cultivated, but as soon as water gets on it, it forms a deep crust on evaporation. Will guano help, or is sodium nitrate or potash the thing?—Recent Subscriber, Orosi.

None of the things you mention are of any particular use for the specific purpose you describe. Keep on working in stable manure or rotten straw, or any other coarse vegetable matter, when the soil is moist enough for its decay. Plow under all the weeds you can grow, or green barley or rye, and later grow a crop of peas or vetches to plow in green. Keep at this till the pesky stuff gets mellow. If you think the soil is alkaline, use gypsum freely; if not, dose it with lime to the limit of your purse and patience, and put in all the tillage you can whenever the soil breaks well.

Crimson Clover.

To the Editor: About crimson clover in California. Has it proved satisfactory? If so, can you give me data how to plant, where to plant, and when to plant.—J. L., Glen Ellen.

Crimson clover must be sown after frost, for it is tender. It will give a great show in June and July on low moist land. It is not good against either frost or drouth. It has been amply tried in California and proved on the whole of little account. Those who know better may take a kick.

Holding Back the Bartlett Pear.

[By A. V. Stubenrauch and H. J. Ramsay.]

[The study of the Bartlett pear product of Southern Oregon by the experts named above, as a part of the Fruit Transportation and Storage Investigations of the Bureau of Plant Industry of the United States Department of Agriculture, is of even more direct value in this State than it is to our northern sister. If Oregon can hold back pears to avoid the California rush, California can do the same to lengthen her Bartlett season and get more even distribution in it. Sauce for the Oregon goose is also a condiment for the California gander. Draw up and help yourselves. California pear growers.—EDITOR.]

Introduction.—There are now approximately 50,000 acres of pear trees in the Rogue River Valley of Oregon and planting is still in progress. By far the major portion of the acreage consists of Bartletts. At present only a small percentage of the trees are in bearing. When the new plantings come into full bearing the production of pears in the valley will assume large proportions, and the problems of successfully marketing the large crop therefore become of pressing importance. The general experience thus far has been that Bartlett pears shipped during the first half of the season do not bring as much in the eastern markets as later shipments. This is due to the fact that they usually arrive in the markets of the East at a time when California pears of excellent quality are very plentiful. As soon as the bulk of the California crop is out of the way the demand for Rogue River Valley Bartletts increases, and the prices received are considerably higher. The extension of the season during which Bartletts can be marketed in good, sound condition is therefore of the greatest importance to the industry of the Rogue River valley, and wherever these pears are grown in the Pacific Northwest.

Precooling and Storage Experiments.—With a view of determining whether the usual Bartlett pear season of the Northwest could be extended or lengthened sufficiently to enable the bulk of the crop to reach eastern markets after the California season closes, investigations were begun in the Rogue River Valley during the season of 1912. These investigations, undertaken at the urgent request of growers and shippers, included a study of the practicability of extending or lengthening the marketing season by precooling and storage at the producing end. The work also included a study of the relation to decay in storage and in transit of the maturity of the fruit at the time of picking, immediate and delayed cooling and storage, and methods of handling in the orchards and packing houses. Up to last season little had been done, at least in a systematic way, with the precooling and storage of Bartlett pears in the valley. Usually the fruit is shipped out as soon as possible after picking and packing, although it is often delayed two to four days and sometimes longer, either loose or packed, in the packing houses before it is loaded into refrigerator cars. After arrival in the Eastern markets, fruit handled in this way must be sold immediately or else placed in cold storage. Most of the attempts to store Bartletts in the East after shipment across the continent have not been very successful or encouraging. Too much time elapses between picking and storing, and the fruit is often exposed to high and variable temperatures while in transit.

Description of the Experiments.—Pickings were made from three different orchards in sections representing three different types of soil. Four pickings were made from each orchard at intervals of a week, the first just before the regular commercial pickings were started and the last fully a week after the usual Bartlett season had come to an end. Thirty-two boxes of fruit were picked at each picking from each orchard, making 384 boxes in all.

In order to test the effect of precooling before and after packing, half of each pick (16 boxes) was packed as soon as possible after picking and the other half was held loose in the "lug" or picking boxes. Half of each packed and loose lot was placed in the cooling room immediately after picking or packing, while the other half was held

for two days before cooling. In the discussion which follows the former are referred to as "immediately cooled" and the latter as "delayed."

The precooling and storage tests were made in three rooms rented from the Medford Ice and Storage Co., one room being used for precooling, one for packing, and the other for storage.

The fruit was picked by regular pickers under the supervision of representatives of the Bureau of Plant Industry. Some of the fruit was packed by regular packers, but most of this work was done by the Bureau men. When the pears were placed in the precooling room the temperature of the room was usually about 20°F., but it increased slightly after the warm fruit was put in. Actual fruit temperatures were taken before placing the pears in the precooling room and during the cooling by means of thermometers inserted into fruits, both near the center and toward the outside of the package. When the temperature of the outer fruit in the packed boxes and the loose fruit in the lug boxes approached 32° the room temperature was allowed to rise 30° or 32° to avoid freezing, and was held there until the inner fruit was reduced to 34° or lower. No forced air circulation was used. The loose fruit in the lug boxes cooled to the desired temperature in less than half the time required for wrapped packed fruit. The cooling was also decidedly more uniform. In the packed boxes it often required three times as long to cool the fruit in the center of the box as was needed for the outer fruit in the same box. This necessitated the maintenance of a room temperature not lower than 30° or 32° after the outer fruit was cooled. The rate of cooling was necessarily slower under these conditions.

Four withdrawals from each lot were made—after one, two, three, and four weeks, respectively. After withdrawal, the various lots were placed in an iced refrigerator car held at Medford, as it was impracticable to make any shipping tests during the season. Each lot was held in the refrigerator car for 12 days, this being about the average time required for earload lots to reach New York. As precooled and cold-stored fruit is cool when placed in the refrigerator car for shipment unless allowed to warm materially during the transfer to the car, holding small lots in a stationary iced car should approximate transit conditions in everything except jolting and the possible influence of fluctuating outdoor temperatures while en route. When cold fruit is placed in refrigerator cars, whether in earload lots for shipment or in small lots for holding tests, the ice has only to supply sufficient refrigeration to hold the fruit at a low temperature; when warm fruit is placed in the car the ice must supply refrigeration both to reduce the initial temperature of the fruit and to keep it cool. After withdrawal from the car the experimental lots were placed in an ordinary warehouse held under approximately open-market conditions. Inspections were made at the time of withdrawal from the car and at the end of market-holding periods of five and eight days.

The total deterioration, as recorded by actual inspection of every fruit in each box, included (1) wilt or shriveling, (2) brown stain or scald, (3) fungous decay, (4) partial physiological decay, and (5) complete physiological decay.

Wilting or shriveling always started at the stem end, and all wilting or shriveling sufficiently noticeable to be taken into account on the market was recorded. Brown stain or scald is a term used to designate a general browning of the skin, at first only a discoloration, but gradually extending into the fruit and causing browning and softening throughout. When recorded in the inspections the discoloration was only on the surface of the skin, and fruits so affected soon softened and were worthless 24 hours after inspection. Fungous decay includes all decay due to attacks of various fungi, most of which undoubtedly gained entrance through some bruising or abrasion of the skin. Partial physiological decay is a term used to designate a darkening of browning at the core of the pear and could be determined only by breaking or cutting each individual fruit. All fruits recorded as showing this trouble

were usually firm and of good eating quality. Complete physiological decay includes all fruits which were completely discolored, soft, and worthless.

At the first inspection, made when the fruit was withdrawn from the refrigerator car, all lots were practicably as green as when they were placed in storage and showed no deterioration of any kind.

At the time of the second inspection, made on the sixth day after withdrawal from the car, some of the lots were even then so green that they were hardly in good eating condition, but nearly all were in prime fruit-stand condition. The third inspection was made on the ninth day after withdrawal from the car.

Deductions.—Analysis of the data from the second inspection shows that most of the deterioration, especially shrivelling, fungous decay, partial physiological decay, and brown stain, occurred in the first pick. The second inspection of the immediately cooled lots of the fourth withdrawal from the third and fourth pick in no case showed even 1 per cent of any of the troubles described after the fruit had been held five days under market conditions. The delayed lots showed very little more. The third inspection of the fourth withdrawal, immediately cooled, third and fourth picks, showed the fruit to be practically sound, with the exception of 5.9 per cent and 18.3 per cent of partial physiological decay in the third and fourth picks, respectively. In the third withdrawal, second inspection of the first pick, there was 7.2 per cent of shriveling in the immediately cooled and 22.7 per cent in the delayed lots; while at the same inspection the immediately cooled fourth pick showed 0.2 per cent and the delayed 0 per cent, respectively. Practically all of the brown stain recorded (sometimes as much as 18 per cent) occurred in the first pick, with only a trace in the second and none at all in the third and fourth. The highest percentages of fungous decay (9.7 per cent in the immediately cooled and 15.2 per cent in the delayed, third inspection, third withdrawal) occurred in the first pick. Some was found in the second, but there was practically none in the third and fourth. The highest percentages of complete physiological decay found in each of the delayed lots of the third and fourth withdrawals, third inspection of the fourth pick, were 11.2 per cent and 12.8 per cent.

Temperature conditions during the time of holding in the warehouse apparently affected the percentage of partial physiological decay found in the second and third inspections of all lots. In the third withdrawal from the third pick, immediately cooled, third inspection, there was 70.6 per cent of partial physiological decay and but 5.9 per cent in the third inspection, immediately cooled, fourth withdrawal of the same pick. In the third inspection of the immediately cooled lots, third and fourth withdrawals of the first pick, there was 79.2 and 91.7 per cent of partial physiological decay, respectively. The pears showing partial physiological decay were in fairly good condition for immediate consumption, being of good eating quality, but they deteriorated rapidly. Undoubtedly the great difference in partial physiological decay between the third and fourth withdrawals, third pick, third inspection, is due to the rather variable temperatures, which occurred at the time these were held in the warehouse. No definite conclusions can be drawn from the inspections as regards cooling before and after packing. In general, the fruit cooled before packing appeared to be in slightly better condition, but not enough to warrant the expense such an operation would entail. Where fruit is cooled before packing, it can be cooled more quickly and uniformly.

The delayed cooled and stored lots showed considerably more wilting and shriveling and on an average more fungous decay and more complete physiological decay than the lots immediately cooled and stored. The delay of two days required for this work is no more than the average given Bartlett pears under commercial handling conditions.

Results of the Experiments.—While it is realized that the work here reported must be considered as only preliminary, indicating the scope which future investigations should follow, the results were striking and consistent throughout and sufficient data are at hand to warrant a full commercial test and demonstration of this method of

marketing Bartlett pears in the Pacific Northwest. Further study is necessary in order to determine the factors of seasonal influence, which must be taken into consideration before all phases of the problem are solved.

The results indicate that the marketing season of Bartlett pears can be lengthened or extended six or seven weeks, provided some changes are made in the method of handling the crop.

The pickings as a rule should be made fully two weeks later than is the ordinary practice. At this time the fruit will be of larger size, of better quality, and in every way will hold up better in storage and in transit. There will be some dropping where the fruit is held on the trees two weeks longer, but this will be largely offset by the increase in size and the improvement in keeping quality. It is also of the greatest importance that the fruit be placed in storage or in an iced refrigerator car as soon as possible after picking, as a delay in cooling of even two days caused much more deterioration than occurred in fruit stored immediately, whether packed before or after cooling.

The results also indicate that the practice of picking the trees clean at one picking, especially early in the season, is not conducive to the best

keeping quality and uniformity. Where only one picking is made, and that early, much of the fruit is picked while it is still immature, and this fruit will show a great deal of wilting, shriveling, brown stain or scald, and physiological decay, thereby detracting from the appearance of the pack and lessening the returns from the fruit which was of proper maturity when picked. The pickings can be extended over a longer time than is generally believed to be the case, and this is especially true where two, or possibly three, pickings are made during the season.

The results further indicate that when picked at the proper time and when carefully handled and promptly pre-cooled. Bartlett pears stored for four weeks at the shipping point and afterwards loaded into pre-iced refrigerator cars and shipped to Eastern markets will arrive in sound, marketable condition and remain sound for a sufficient time to allow reshipment and consequent wide distribution to ultimate consumers. The season can be extended from six to seven weeks by leaving the fruit on the trees two weeks longer than is at present the practice and by storing for four or five weeks at a temperature of 32° or 34° F. after the fruit has been pre-cooled.

Live Stock Notes and Comments

[By Our Associate Editor.]

It is to be hoped that every breeder of swine that possibly can will attend the meeting of the University Farm at Davis, April 17, called by Professor Marshall of the Department of Animal Industry, for the purpose of having organized a Swine Breeders' Association. Details for the meeting were given in the last issue of the PRESS. Such an organization would do lots of good in developing the right kind of a market for good gilts and boars, as it would make hog owners hear more of pure-bred swine and appreciate good stock when they saw it. California has started on a rapid increase in pork production through the great number of small farmers starting on the newly irrigated sections all over the State. With poultry, the first thing a man does, or should do in developing a small ranch, is to get a sow and put in some kind of corn that will help him to turn off some good pigs with little expense and delay. The increasing amount of diversified farming, the greater planting of Indian corn and the sorghums and the higher prices of meat all mean more hogs and better hogs, and there is nothing like seeing that the hog raiser gets the kind of boars and sows that he should have.

Hogs Going Higher?—Hogs have been away up all over the country and some papers in the East are surprised that the prices show such a tendency to stay up. But, after all, the price paid don't count as long as the goods can be sold at a profit, and as long as the hogs sell, that is all there is to it. If prices will stay up as they have when expectations were that they would go down, the prospects for the future at least look favorable.

Effect of Stallion Registration.—We are in the second season of the enforcement of the stallion registration law, and at the close of the season it will be interesting to know just what effect the law has had as compared with the findings of the first year. It is to be hoped that more progress will be made than in North Dakota, whose law is quite similar to ours. The percentage of pure-bred stallions there does show a slight increase it is true, going from 42.9% in 1910 to 43.1% in 1911, and 43.6% in 1912. Still, when the scrubs die off, they will probably be replaced by pure-breds. Of the draft breeds, 70% are Percherons, there being 790 of these against 118 Belgians, 101 Clydesdales, 72 French drafters and 62 Shires. One interesting thing brought up is the comparative soundness of pure-breds vs. scrubs. Disqualifying unsoundness was much more common among the grade and scrubs than among those of pure breeding. This was especially true of sidebones, spavins and curbs, although the pure-breds suffered more than scrubs from eye diseases and stringhalt. The most common unsoundness among Percherons, Belgians and Shires was sidebones, but no Clydesdale was disqualified on that account.

Tab on Cream Check.—The following from Hoard's Dairyman will belong here, giving Kansas experience on a matter that interests all dairymen who sell cream to creameries: An editorial in the PACIFIC RURAL PRESS indicates that the test question is a subject now before the California legislature. The Dairy Bureau of that State seeks the authority to supervise tests. Perhaps the best example of such supervision, because of the immediate effect secured, is to be found in Kansas. In that State the Dairy Commissioner is required by law to examine and license every person buying milk or cream by the test. No one is allowed to buy on the fat-test basis who has not secured such permit. The practical result has been to solve the whole test question, which has been a vexing one for years. Any complaint of unfairness is at once referred to the Dairy Commissioner and he is required to investigate the trouble. If he finds just cause for complaint he has the power to revoke the permit, putting the man holding the license out of business, so far as testing is concerned.

The fact that cream buyers, milk buyers, etc., have a State permit and have been required to pass an examination to secure such permit, has given the sellers confidence in the test. All tests are uniform in the methods employed, to protect the buyer and seller alike.

Less Farm Butter.—Every dairyman knows that only in very isolated locations is there enough butter made on California farms to cut any figure even in the country stores. It is interesting to note that this is far from being the case in the country at large, although the tendency is very rapid toward the California practice everywhere. According to census reports, there were made on farms in 1899, 1,071,626,056 pounds of butter. In 1909 there were made on farms 994,650,610 pounds, a falling off of nearly 77,000,000 pounds.

In 1899 there were 518,042,767 pounds of the farm-made butter sold from the farm; the balance, or 553,583,289 pounds, was consumed in the home on the farm. In 1909 there were 415,080,489 pounds of the farm butter sold and 579,570,121 pounds consumed in the farm homes.

Butter made in creameries in 1899 amounted to 420,126,546 pounds, and in 1909 to 624,764,653 pounds, a gain of 204,638,107 pounds, or 48.7% in the 10 years.

In other words, while the total amount of butter made is increasing, the amount made on the farms is rapidly decreasing, and the amount sold from farms is decreasing still more rapidly. Ultimately the whole country evidently will come to the California practice: separate the cream and let the creamery do the work.

The Point Overlooked.—A little while ago it was announced that the wool tariff was to be cut down to about 20 per cent ad valorem, or some such figure. Now the plan seems to have met with high favor among the powers that be to

make a clean sweep of Schedule K altogether, to revel in free and unlimited wool. We won't know what the doctors will do until they do it, but the last plan looks as if no bread were thought better than half a loaf, or however the proverb goes, anyhow. A heavy dose will bring results quicker than a light dose, which is one comfort, and everybody would sooner have a short, quick departure than a long, lingering death. And if the tariff is not going to kill outright, but leave a fair profit in the wool business after all, the sooner everyone knows it, the better it will be. But there will be one surprise (maybe) among the ultimate consumers when they go with smiling faces to the ready-made tailors to get a cheap suit, fondly thinking of the way that slaughter of the iniquitous tariff will make cheap clothes. The American Sheep Breeder is authority for the statement, based upon careful investigation in practically all of the great Eastern clothing stores, that a suit of clothes costs no more now than it did when the Cleveland administration was having its way with the tariff. If the ultimate consumer who is attacking the wool tariff finds that he has to pay as much as ever for his clothes, some radical revision of opinions will follow radical revision of the tariff. Everybody that really knows, knows that it is the method of distribution, and neither tariff nor trusts, that makes for high prices. Well, it's too late, to stop tariff revision; a lot of tariff revision was needed, and what's coming better come and have it over with. For that matter, there's a big world's shortage, and a big world's meat hunger, and a strong probability that the tariff reduction won't hurt half as much as most people think.

Speaking of Meat.—Speaking of meat, the tariff and such, reminds us of Germany and the meat business. Spero, the German economist, says that his country is utterly unable to get the meat it wants without pulling it over the tariff wall. Municipal authorities are doing that very thing, and the demand for more meat is so strong that the wall will probably be lowered or leveled to make the pulling easier. This step the London Live Stock World thinks will be the beginning of the end of all meat tariffs of Europe, and that much beef, mutton and pork formerly going to Britain will soon go elsewhere, which will cause a revolution in the British meat trade, a sharp advance in prices, and consequently a greater profit in stock-raising in exporting countries. If they will only do all that before the fall shearing, prices for mutton might go up so as to overcome the fall in prices for wool, and all would be well. Every day will be Sunday when everything is done just as it ought to be.

The Mighty Fallen.—Since we are unable to get away from prices in too much of a hurry, we will come to the horse proposition. The sport of kings is nearly in the discard. Perhaps republican sentiment has grown too fast and that accounts for it. Anyway, a string of 21 brood mares, the property of Barney Schrieber, was sold at auction at Woodland not long ago to satisfy an attachment. Several of them were among the best in the country, but the lot brought only \$1,517.30. How art the mighty fallen! Now if it were a string of fine Percheron, Belgian, Shire or Clydes mares, the price would not have stopped there by one big mile. It would have gone as much ahead of that price as the above mares would have gone ahead of the drafters if both had been put on the track together. The sport of kings has given way to the sport of the farmer. Guess that the auto makes the speed nowadays, and the drafter makes the money to run the auto.

Ayrshires at It.—The Ayrshire dairymen are breaking records again, and, very naturally, the new record comes to the Pacific Coast, even though not to California. Ayrshire breeders have not been officially testing their cows, and have but recently got their gait. Several months ago there was the hurrah when Jean Armour made the 20,000 pounds of milk and better in a year. Now comes Gerranton Dora 2nd, owned by J. W. Clise of Washington, with 21,024 pounds of milk, 3.83 per cent fat, making a total of 804.79 pounds. If you want to figure it out as 80 per cent butter, that makes her a thousand-pound cow. When the dairymen get to work on any good dairy breed, they can get results.

Better Seed Movement in Nevada.

[Written for the PACIFIC RURAL PRESS by
E. A. HOWES of the University of
Nevada.]

In dealing with the question of better seed, we are assuming at the outset that a need for such exists in Nevada. The assumption would be fairly justified in the case of any State in the Union; therefore it is justified in this case. Advocates of better live stock on the farm are wont to point to the fact that it costs no more to keep a good cow than it does to maintain a poor one, other things being equal. On the same sound basis of reasoning, the farmer cannot afford to use his time and acreage for the production of a mediocre crop, and often a very poor one, when he might, at the expense of no more time and space, produce a crop which would be a source of pride and profit.

Granted all this, we know that many farmers still breed and raise poor stock, and in the same class are the many farmers who sow poor seed and blame the weather or the soil for the poor crop resulting. The weather may give crops a set-back; the condition of the soil is potent for good or evil production, as the case may be; but with adverse weather and with soil conditions that leave much to be desired, the farmer can, by sowing good seed, grow a fair kind of crop and one which will possess quality if not quantity. On the other hand, no farmer can expect, with the most favorable weather and the most desirable soil conditions, to secure a good yield if he sows impure seed or seed lacking in vitality. How important it is that a man should know the source and condition of the seed which he sows.

WHY BETTER SEED?—Some of the ideas offered here in connection with the seed problem are neither original nor new—some are very old. We all remember the parable of the sower; leaving aside its moral interpretation, we are seized with the fact that in those days there were certain agriculturists who were known to sow good seed and to reap abundant harvests. They evidently appreciated the value of good soil preparation, for the fate of the seed that fell by the wayside or upon stony places is used as a common illustration. Again, we read of the enemy who sowed tares in his neighbor's wheat field; so the problem of seed impurity is as old at least as Hebrew story. We trust, however, that the years that have gone by have added to our knowledge of the question, and have given us a more comprehensive attitude toward it.

THE WEED QUESTION.—It is true that we know vastly more than did our forefathers about weeds, their propagation and eradication, but it is true also that the question is a harder one to solve in our day than it was some time ago. The spread of civilization has brought to our notice many new and troublesome pests in the shape of weeds; increased facilities for commerce and travel have served to distribute these pests. When the farmer of other days sowed seed, he sowed what he had grown himself or what he had procured from a near-by source; today our seed comes from all over the world. We import weed seeds, and, just to show that there is no hard feeling, we export weed seeds. Thus while a great advance has been made in our knowledge of weeds, and the means for their eradication, the field for work is, to say the least, as large as ever.

If the business of handling seeds is to be governed by the highest principles, all seed must be carefully examined as to purity—we cannot be too particular in this matter. It is true that the seeds of most noxious weeds may be removed by a thorough system of re-cleaning, and

leading seedsmen have installed costly machinery for this purpose.

It is true, on the other hand, that this re-cleaning can only be carried on up to a certain point without loss, for the removal of the weed seeds after this point is reached will entail the removal of a percentage of the good seeds, although probably not the best of it. Therefore a dealer should never buy from a grower, no matter how low the purchase price, seed which he has reason to fear cannot be re-cleaned with profit. If he does purchase such he has two alternatives—to re-clean at a loss, or to sell with a percentage of impurity remaining. That the latter is the course often followed is well proven by the number of convictions for infringement of the seed control act, where such act is in force. From this state of affairs we may draw two lessons—the farmer must share the blame with the dealer wherever the buying and selling of impure seed goes on; second, that if the farmer insists on getting good seed, and it is in his interest to do so, he should be willing to pay the dealer a higher price than he would expect to pay for stock not up to the mark.

CAUTION.—In the case of cereals, less is purchased for seeding purposes than with grasses and clovers, and also the danger of contamination is less; the seeds of the cereals being comparatively large, most weed seeds should escape during an ordinary screening. The most probable exceptions are the seeds of wild buckwheat, wild vetch and wild oats, but there is no excuse for a man who buys seed with such plain evidence of contamination as these afford.

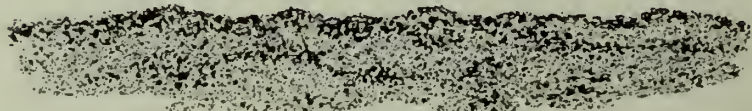
With the smaller seeds the detection is not so easy, nor is the removal of impurities so easy. Alfalfa or red clover, handled in the ordinary way, may contain seeds of rib grass, curled dock, ragweed, and many other weed seeds which approximate in size the stock seeds. Alsike may contain seeds of false flax, catchfly, yellow trefoil, etc., for the same reason. Foxtail is often found in timothy. The list is lengthy and serves to show the necessity for becoming acquainted with these, our enemies, plant or seed or both.

Besides the contamination, which we have but touched upon, there is also the possibility of adulteration. With alfalfa seed selling at 15 to 20 cents per pound, there is good money in including the seeds of sweet clover or yellow trefoil, and these, deliberately or absent-mindedly, may be allowed to become an adulteration in the alfalfa seed. White clover has but a limited demand, therefore any surplus may as well be unloaded as alsike, by mixing with the latter and selling the mixture as alsike. And so adulteration is carried on.

PRECAUTION.—Generally speaking, the testing of seeds of grasses and clovers is work for an expert. True it is that by a careful study of certain publications, accompanied by as careful a study of weed seeds themselves, the farmer or the dealer may become acquainted with many of their weed enemies, and we cannot say too much in favor of such self-education. For the great mass of the agricultural public, who feel that they cannot give requisite time to this study, the safeguard is a seed-testing station. To this station samples of seeds of cereals, grasses and clovers could be sent by the farmer or by the dealer. At the station the seed expert would take a definite quantity of the sample, note down name and number of weed seeds found therein and report the same to the sender. A grading could be given, determined by the amount of contamination and by apparent vitality.



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During the winter the Nevada Experiment Station has tested and reported on many samples sent by both farmers and dealers. In addition to a report on purity, a germination report has also been made where desired, the station being fitted out with a germinator capable of testing over 75 samples at one time. It has been most gratifying to members of the staff to see the readiness with which the Nevada people are availing themselves of the protection offered early in the season in the matter of testing seed as to purity and vitality.

We must, however, do more than be satisfied with the defensive, protective course just given or suggested. Is it not possible to have seed threshed for which there will be no necessity for re-cleaning? It looks like putting up a straw man for the sake of knocking him down, when we grow weeds and then invoke legislation to force the removal of the weed seeds from our stock seed. Do the only rational thing—prevent the weed seeds from ever getting into the threshed article. How can we accomplish this? By the simple and not overly arduous task of spudding out the weeds from the seed plot before they can go to seed. Remove the weeds before they can mature seed and you are preventing much future trouble for yourself and for others. This plan pre-supposes a seed plot, instead of a haphazard selection from the thresher spout.

Reno, Nevada.

FRUIT NOTES.

We have received a letter from Albert F. Etter, with whose strawberry plants many of our readers are now acquainted that contains some interesting things about fruit. Mr. Etter states:

Dr. H. G. Gross of Eureka is in New York city taking a post graduate course in some of his specialties. While there he interviewed some of the largest fruit brokers in that city for the benefit of Humboldt county orchardists. Regarding pears he writes: "Louise Bonne de Jersey pears are a good pear, but not many are on the market. They ought to bring \$1.25 to \$1.75 per box f. o. b. shipping point. I received this information from the firm that handles the most fruit of any firm here, and it is, I think, perfectly reliable. They advised me to tell the people at home to plant pears rather than apples, and he said the best pears in order of prices and demand were: B. Anjou, Comice, Winter Nellis, B. Bosc and Easter B. In apples they gave the order according to prices and demand thus: Spitzenberg, Newton, Winesap, Jonathan, Arakansas Black, Rome Beauty and Stayman Winesap. These people handle 1200 to 1500 carloads of apples yearly, so are in a position to know the demands of the market. I also hope you will keep these things in mind in giving information to others. They also said: Mind your pack, you can't fool us. You only hurt yourself if you fall down in quality."

Here is a good report on Ettersburg strawberries from Prof. V. R. Gardner of the Oregon Experiment Station. Last spring I sent them eight of my varieties to try out at their station at Corvallis.

"Will say that your strawberry plants were set out in our trial plots as soon as they were received. They made an excellent growth last year and are now in very good condition. Of course, they have not yet fruited, and I can only judge them as to plant character. You will probably be interested in knowing that they really look better at the present time than any of the cultivated varieties we have. I shall certainly watch them through the blossoming and fruiting season with a great deal of interest,

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and as soon as picking season is over will write you a detailed report regarding each one."

The above is in keeping with habits here—by establishing themselves so well the first season that they can outfruit the regular varieties the second season without half trying.

MEASURING HAY IN STACK.

For obtaining the number of tons of hay in a stack, the first step is to measure the width and length with a tape line, and then what is known as the overthrow, that is, pass a tape line from the bottom of the stack on one side over to the bottom on the other side, and divide this measurement which is called the overthrow by three, then multiply the length by the width, and this by one-third of the overthrow—this gives you the number of cubic feet in the stack. Of course, if the stack is different widths or different heights you will have to take the measurements in several places and obtain the average of these by adding them together and dividing by the number of measurements made.

The number of cubic feet of hay per ton varies considerably with the length of time that it has been stacked. With newly stacked hay it will take about 500 cubic feet to equal a ton. If it has been stacked for two or three months, from 350 to 400 cubic feet will equal a ton. After you have obtained the number of cubic feet in the stack, divide by the number of cubic feet in a ton, taking into consideration the length of time that the hay has been stacked.

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The California Black Walnut.

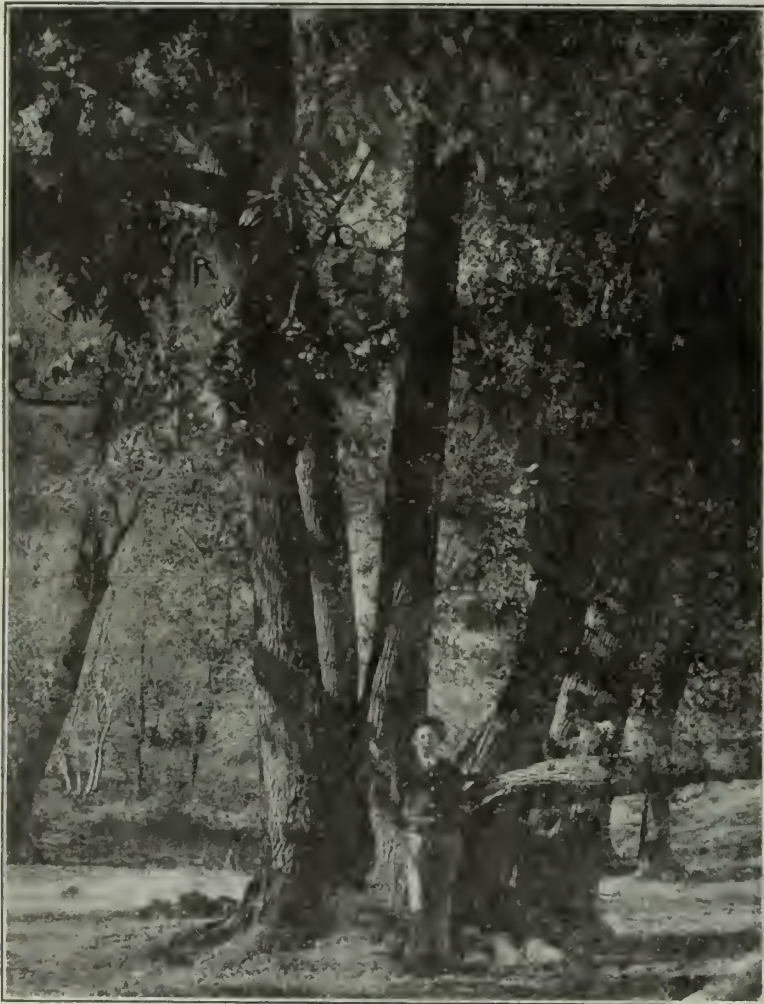
(Continued From Last Issue.)

[By Professor R. E. SMITH of the University of California.]

Examination of the stumps of some of these cut-off trees shows one that many of them were more than one hundred years of age when cut, and this is true even of some of the smaller ones. Some may be found which are considerably older than this and apparently well up toward two hundred years old. The broken-off stem shown in the picture of the largest tree was cut off and found to be at least sixty years of age, and probably considerably older than this at the base. This was much the smallest of the trunks in this group.

The little glade in which this tree stands was evidently the site of an Indian village, as evidenced by numerous

there was one locality in this region where black walnut trees were growing when the first white people arrived in the country. This is evidenced by the memory of various old settlers, also by the name "Walnut Creek" and the fact that the original Spanish grant comprising this region bore the name "Rancho Arroyo de las Nueces y Bolbones." "This fact," to quote from Ely Hutchinson, "is confirmation strong as proofs of holy writ that the walnut was growing in the vicinity when the Mexicans sent in their petition for the grant." The name "Bolbones" appears to be at present quite obscure, but, according to the investigations of Mr. Hutchinson, it probably re-



Old Black Walnut Tree at Walnut Grove, Napa County.

arrow-heads, spear points, mortars, etc., which have been found there. On investigation these trees show beyond all possible doubt that many of them must have been large, old trees even at the time of the Spanish occupation of California, and that they could not have been planted by any white people. This grove can be most readily reached by driving from Napa to Wilson's Inn, a summer resort, at which is located Atlas postoffice, and from which a wood-road leads to the walnut trees at a distance of about two miles.

The history of the two stations mentioned in the quotation from Jepson has been quite thoroughly investigated in connection with this work. In regard to the one mentioned near the base of Mount Diablo, we may say that in the valleys on the west side of the mountain in the vicinity of the towns of Walnut Creek, Danville, Lafayette, and Concord, there are a great many California black walnut trees, both young and old, most of which have been planted within the memory of people still living in that vicinity. Inquiry shows, however, that

fers to some other kind of tree which grew in that vicinity. The original trees of this locality were located in the so-called "Moraga Valley" in the Walnut Creek country east of Oakland. Some of these trees are still standing, although many of the finest were cut for timber many years ago. These trees are of an extremely stately, tall-growing, clean-trunk type, fully as much so as the best types of the Eastern walnut, *Juglans nigra*. They are all composed of single trunks and have the appearance of being younger than the oldest trees in the Napa mountains. The bases of them are larger than any of the trees in the latter locality, being in good, moist, deep soil in an open valley, free from the competition of other trees. The nuts and foliage are entirely similar to those of the Napa county trees.

The third original locality mentioned is that in the vicinity of the town of Walnut Grove, on the Sacramento river, about thirty miles south of Sacramento city. Large, old, black walnut trees are very abundant on the ranches in this locality, and there was until quite re-

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cently a long row of large, fine, old trees along the river bank outside the levee from Walnut Grove north. These trees were cut down a few years ago in repairing the levee. Although very large, they were not the original trees of that locality, but were planted there within comparatively recent times. Inquiry in the vicinity of Walnut Grove has developed the information that when the first American settlers came to the lower Sacramento there were a great many black walnut trees growing in this vicinity. William Holtlun, who at the time of this investigation was thought to be about the oldest living settler in the vicinity of Walnut Grove, came there about 1850. At that time, he stated, there was quite a large grove of magnificent black walnut trees growing at and below the fork of the river just below Walnut Grove. There were twenty or more trees there over three feet in diameter. Black walnut trees were scattered all along the river from Freeport to Rio Vista.

On what is now the Hart place, near Isleton, there were some especially large trees. The row of trees which stood along the river near Walnut Grove was planted by one H. W. O'Dell. The earliest planting was probably about 1856, followed by others up to the early sixties. During the early fifties many people used to come to Walnut Grove from the country about Vacaville, Elmira, and other places, and carried away walnuts by the bushel and sack. Up and down the river there was a great growth of live oak, white oak, ash, cottonwood and black walnut until 1856, when a great fire from the north swept over the whole country, destroying almost all the native timber. Mrs. Clara Lord, of Walnut Grove, stated that her parents came to this locality in 1850 and set up a tent under three walnut trees which stood in front of her present house. There were also many other large black walnut trees in the locality at that time. Joe Wise stated that he chopped wood on the river in 1853 and 1854, and chopped down many walnut trees 2½ feet and more in diameter. Robert Sharp, of Walnut Grove, stated that he came to the vicinity in 1851, when a boy, but remembers very distinctly that there were many large walnut trees growing along the river at that time. Also that they had to cut their way with axes on account of the luxurious vegetation. Joe Greene, living two miles above Courtland, stated that in the early days they cut out black walnut trees two, three and four feet in diameter. Also that such trees grew among the timber along the river bank rather than back in the swamps, and that they extended such as far as Rio Vista. C. V. Talmage came to this region in 1857, and stated that there were many immense black walnut trees along the river at that time.

These data are sufficient to show that there was an abundant growth of black walnut trees at this point previous to the first white settlement. Apparently, none of the original trees now remain in this locality, although some of the largest black walnut trees in the State may be found here, having been planted in the fifties. These trees and the nuts which they bear are of exactly the same type as those at Walnut Creek and Walnut Grove in the Napa mountains.

It is not improbable that other localities of this sort may be found in the northern part of the State, especially in northeastern Napa county where we have a fairly definite report of such original trees.

[California is also fortunate in having in the southern part of the State a native walnut of another type, of which account will be given at another time.—EDITOR.]

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Eradicating Gophers.

[Written for the PACIFIC RURAL PRESS by
HENRY BREEN.]

To begin with, the first thing to learn is the habit of the pest or animal. There are the male and female of the species. Each has a distinct mode of working, the male works near the surface, and the female works down to a depth of three to four feet. The reason for this is that the male like a soldier is always foraging, while the female attends strictly to the home making, and does the heavy work. She makes the nest about three feet below the surface and consequently does a great deal more work than the male. The female has her regular hours for work. The hours are 7 o'clock and 10 o'clock in the forenoon, and 3 o'clock in the afternoon. While the male works the same hours he is liable to work at any time he gets hungry.

While the fact is not generally known it is very easy to distinguish between a male and a female gopher hill by looking at the mounds thrown up. The male will throw up small mounds here and there, and work around till he gets to where the feed is. After he feeds and stores away a small quantity he will retire, close up the hole after him, and will

close it for quite a distance, making it hard to trace him, and unless a person is persistent and determined to capture him, he is very liable to get away.

While the female is far more easy to get with poison, the male is easy to get with traps for the reason he works and lives near the surface and always has two or three runs, and by putting a trap in each run so that he can not throw it out with the dirt you are sure to get him. Always use at least two traps for one gopher, as it is hard to tell which run he will come back on. The gopher is a wise animal and has a keen sense of smell and knows by instinct if a fellow gopher has been in a trap set for him, and will always push enough dirt ahead of him to spring the trap. Where traps are constantly used and having blood and hair on them they should be burned and smoked before using again.

The female on account of making her nest always throws up more and larger mounds than the male. By taking a shovel along with your can of wheat you don't have to depend on finding open holes, but by scraping the largest mound off even with the surface of the ground you will see the dirt dropping down a deep hole. When you find the hole, then drop down a teaspoonful of poisoned wheat, carrots, prunes, or whatever you may be using. Always use a trowel, never use the hand as the gopher can smell it for quite a while after you have cleaned the hole out and always have the holes as clean as the gopher leaves it. By drawing the back of the trowel a couple of times along the bottom of the hole it leaves it smooth and hard, and the gopher will pick up every grain if he is storing it.

If he is hungry, and eats it, you will find the gopher lying close by the wheat. If you find the wheat-missing or see that he has eaten any of it you may be sure you get that one. The gophers do not always eat the poisoned grain as soon as they find it, but very often store it until such time as they need it. And if the ground is wet the poison leaves its strength, and does not kill when it is eaten. Sometimes the man making the poison gets economical and does not mix enough strychnine to kill when eaten fresh. In that case the grain and time is wasted.

Every female caught this season is equivalent to about nine gophers next season, as that is about the number of young ones to a litter. On large places where gophers are numerous, a man or men should be employed using both traps and poison until the property is thoroughly cleaned and no more gophers seen working, and then the ground should be watched for stragglers. If a man works steadily and is not afraid to use a shovel he can clean up a large piece of ground in a short time. A shovel will get more gophers than a shot gun.

A man may have his property cleaned up and no trace of a gopher, but in the next field there may be plenty of them. When your neighbor does his plowing, his gophers come over to your field, so then you have the trouble and expense of catching his gophers for him.

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Other Angles on the Game Laws.

To the Editor: From the frequency
that one sees comments on game legis-
lation, it is evidently becoming far more
interesting than it used to be. I used to
be somewhat of a sportsman myself and
took a keen interest in pursuing wild in-
offensive animals and killing them. I
felt a certain exhilaration and pleasure
in doing so—that feeling men call "sport."
I don't wish to say that I have reformed,
and won't do so any more, and that I live
in unison close enough to nature to know
something about game, its habits, and
the ways open to increasing the supply.

The game question is not a two-sided
affair. The game is one, the man behind
the gun is two, and the natural enemies
is the third party. Heretofore, with one
or two exceptions—the panther and coy-
ote, all legislation has been directed to
man alone. He is restricted in hour and
season, and in the manner in which he
may take game. We make no pretense
of legislating against the natural ene-
mies of our game. There was a time
when game was plentiful enough so that
these same natural enemies, that now
are destroying it, simply held it in
check. Now, however, since man has
so reduced the numbers of the game,
these same natural enemies are slow-
ly and surely exterminating the re-
mainder.

Bobcats and coyotes are destroying the
deer in season and out of season. It is
folly to think that a bobcat kills only
an occasional fawn, for they can, and do
kill yearlings and larger deer, too.
There are numerous instances in this
county where they have been known to do
so. All bobcats may not do so any more
than all bobcats will kill goats. When
once they do take to killing either goats
or deer, they stay with them. The man
who dares to kill a fawn or a doe, or any
deer out of season, is given a stiff fine,
but bobcats are a negligible factor.

Quail and grouse cannot increase in
this vicinity at all, even though given
any advantage, simply on account of
hornowls, red-tailed hawks and other
smaller hawks. On our streams here the
fish do not increase, not because people
catch them; but solely on account of their
natural enemies, the chief offenders be-
ing the otter, sawbill fish ducks and a
little gray fish snake.

Now, the common point I make is this
—If the game will not increase where it
has every advantage in its favor and the
depredations of man are slight, what are
you going to do about it? The natural
enemies seemingly require just about so
many to meet their wants. If man kills
none, they are able to hold them to about
a dead level. If man does kill quite a
number, then the natural enemies almost
exterminate them.

Game laws such as we have can work
out to any big increase of game if what I
observe here is a fair example of the
State of California. The only rational
solution is to protect the game by de-
stroying its natural enemies. The only
way to accomplish this is to first make a
thorough study of our wild nature to de-
termine the position of each as they ex-
ist now. Restriction of some of the ene-
mies of our game may result in develop-
ing a worse evil than the one we are
striving to correct. The whole wild na-
ture is a complicated mixed up affair that
needs some wide discretion to handle it
right.

As an instance, the great horned owl
not only destroys quail and grouse and
even poultry at times; but they are bene-
ficial in their destruction of cottontail
rabbits, jack rabbits and mice. One of
their delicacies is our big fat striped
skunks. As a mouser, a skunk is worth

as much as an owl and his fur is valu-
able, too. With the hornowl and the
redtail hawk, another bird that preys on
young skunks, out of the way, we will
have an increase in skunks that will de-
stroy the mice. With the bobcat also out
of the way, there will be a big increase
in jack rabbits and all kinds of squirrels.
With the bobcat eliminated, house cats
would take care of most of these with
the exception of the large jack rabbits.
But a house cat will not last long when
once a bobcat spies him. Some house
cats will kill the quail; all owls and
hawks kill quail, so naturally the quail
would be better off among cats than
among owls and hawks. So you observe
that in this game of shifting the dangers
of life, the quail and grouse let the jack-
rabbit off very easy. The man with the
gun will have to take care of him.

SAVING SOMETHING TO KILL.—If I were
going to "Europeanize" the game laws of
California, I would come "Uncle Josh" on
it. I would see what the sportsman
wanted, and then I would see what
the other party thought of the matter,
too. The sport that feels that he simply
must kill something to relieve his pent
up passion to spill blood should have
something to match himself against more
willing to fight back than a jack rabbit,
and something more formidable than a
bevy of quail or a dove. Why not have
State game parks and stock them up
with vicious wild boars from the
Schwartz Wald of Germany? Let our
sports pay to enter these parks, armed
only with light rifles, a six-shooter, knife
and a bottle of "schnapps" and his dog. He
would probably get his money's worth in
excitement and fun, and the pig would
be likely to enjoy it quite as much as the
hunter, as he is somewhat of a sport
himself. There are many localities where
these parks could be established and they
would furnish a type of wild life that
some people think life is hardly living
without. One thing is certain: they would
not only be wary, but readily out on the
warpath; there would be the element of
danger present to both man and dog that
would chase dull cares and worry of
business away, and that is the only kind
of sport with a gun and a dog that is
worth pursuing.

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What the Stock Judge Said About It.

[Written for the PACIFIC RURAL PRESS by
J. C. LOOMIS.]

While judging the two-year-old class of Holsteins at one of the fairs held in this State last year, the judge gave the blue ribbon to a home grown bull which was competing against a high-priced imported bull that the owners felt sure would capture the first prize, and gave substantially the following comments on his selection.

"In judging stock at these fairs we are governed entirely by the good or bad points as we see them and this local animal outpoints the other one according to my views, yet I wish to state that for utility these fairs do not always decide which is the superior animal, as most judges concede that an animal's pedigree should allow him 50%, and some as high as 75% when purchased for butter-fat results, therefore an animal awarded first prize solely on his points is liable to be inferior to his competitor who has better papers. In this case the bull who is getting second has, I understand, a fine pedigree back of him, and will most likely sire better off-spring, but I am not allowed to take that into consideration here."

After hearing the above remarks the writer wondered whether dairymen who

purchase pure-bred bulls were spending their money for animals with show ring points or whether they did take the papers into consideration for their true value. So since that time when a dairyman says, "I have a pure bred bull over here," the question is generally asked, "what breeding is he?" and we believe a large majority have replied, "I purchased him from so and so, who has a fine lot of registered cows, but I don't remember the long outrageous name my bull does carry. Anyway I paid so much, and he should be good." Then he will perhaps mention the good points of the animal and pass on to some other subject.

In a good many instances the name of the bull and his ancestry was known, and still their butterfat records were not known, which seem to be the most essential.

According to the judge formerly mentioned from one-half to three-fourths of the bull's good qualities depend upon his breeding so it would seem the average dairyman only knows 25% or 50% of his bull which he is expecting to realize better returns from.

If the same man were buying a ranch, would he simply look at one-fourth or one-half of it and say, "I guess it's a good place because as far as I looked it was all right, and this real estate agent has only good ranches on his list"? This question is so simple it needs no answering, yet it is the condition of a great many purchases of registered stock, and one breeder recently told the writer that he had a number of customers among the foreigners who did not even care for the papers, providing it was registered he was satisfied to pay the extra price asked.

When asked what the chief advantage in buying registered stock was, a prominent breeder recently replied, "A registered animal should be superior to a grade because he has a family history back of him which should show what all of his ancestors accomplished, that is, it should show what his mother did, who her sire was, her dam, and so on away back, also what the animal's sire did, the sire's mother, father, etc. If in looking over the papers in this way the animal's fore-fathers do not show up any good butter-fat records one had better look a little farther until he finds one with results back of him, otherwise he is apt to buy what is known as a pedigreed scrub."

While it is true a great many grade cows give as a herd, as good returns as some registered herds in butterfat, they are usually cases where several years have been spent in breeding up with purebred bulls of good parentage, and not where a hit or miss system prevailed by buying any bull that had registration papers back of him.

While of course the chances of better results are in favor of the registered animal it is not always the case, so it would seem necessary to spend a little time and thought before buying an expensive animal whose pedigree had not been looked into for the one with the good record is more apt to sire desirable offspring than the other.

That it is possible to increase the returns from a herd with the use of better bulls is beyond a doubt in most localities, but perhaps no more forcibly than on a ranch recently visited in Stanislaus county.

This dairyman had a herd of grade Jerseys which he had been careful in selecting and had a good representative herd at that time. A good bull was purchased, and the results in the way of butterfat were kept account of. At the present time he has only the heifers, having disposed of the mature cows, and in looking

over his cream checks he found that these heifers were giving more butterfat at the same time of the year and under the same feeding conditions than his mature cows did three years ago. As all other con-

ditions were alike except that of the sire, there is no doubt but what that factor should receive the credit for the increase. It should be said this man not only relied upon his own judgment in



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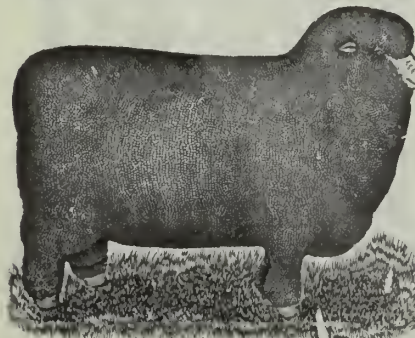


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REGISTERED BLACK PERCHERON Stallion, Joaquin No. 77186; three years old next April. Price reasonable. F. S. Israel, Linden, Cal.

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Breeders who are breeding for the show ring, naturally have to go a lot on points as well as for the milk bucket, but the average dairyman who is wanting butterfat alone should, it would seem, pay a good deal more attention to the milk buckets of his sire's ancestors than is usually done.

The pedigreed scrub has perhaps been one of the chief factors in retarding the growth of the purebred business, and has been knocked around by both the reliable breeder and dairymen for a good many years, yet he still exists, and will no doubt continue to, until dairymen look further into their sire's ancestry and refuse to buy any but one who has merit behind him.

VETERINARY QUESTIONS AND ANSWERS.

[Contributed to the PACIFIC RURAL PRESS by E. J. CREELY.]

To the Editor: We have a valuable Jersey cow that got somewhat lame one year ago in one hip or leg after calving but soon got better. Last June when she came in one leg was lame. It seems to be in the stifle joint and the first one above. When she walks she gets real lame. She seems to eat well, but of late has got quite thin. Could you tell me what is the cause and remedy?—W. H., Modesto.

Rheumatism is the trouble here. Give the following powder:

Soda salicylate3 oz.
Salol2 oz.
Pulv. gentian root.....2 oz.

Mix and make 24 powders. Give four daily. Apply Pratt's or other good veterinary liniment.

SUPPLEMENTARY TEAT.

To the Editor: Can a double teat on a cow be cured? One of the little auxiliary teats on the back of the bag is on the side of the back teat, so it fills your hand with milk when you milk one of my cows. —J. A. D., Walnut Creek.

I would advise you to let this alone. I could give you a fluid to inject that would stop the gland secreting, but it may communicate to the other gland and cause trouble.

PARASITIC IRRITATION ON HORSE.

To the Editor: Could you tell me what is the trouble with a mare, and the cure? The mare is rubbing her neck, head and ears very badly, also her tail some. The hair and skin seem to be very harsh and dry. When worked to become warm she is much worse. She has been worse for the past two days, but has been on grass. This same trouble has been on some mares in the valley for 20 years, and many cures have been tried, but little good result has been shown.—J. A. S., Lompoc.

Give internally a heaping tablespoon

BEEF CATTLE.

SIMON-NEWMAN CO., Breeders of Registered Herefords. R. M. Dunlap, Manager, Newman, Cal.

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SHORT-HORNS AND BERKSHIRES—Count Avon, International grand champion, heads herd. C. F. Curtiss, Ames, Iowa.

JERSEY CATTLE, DUROC JERSEY SWINE. Mossdale Farm. J. E. Thorpe, Stockton, Cal.

sal nitre twice daily. Apply the following once daily, after washing with hot carbolic water:

Neutral oil 8 oz.
Milk of sulphur 1 oz.
Turpentine 1 oz.
Kerosene 3 oz.
Tinct. iodine 2 oz.
Olive oil17 oz.

Mix. Whitewash the stall and scrub the harness.

PARALYSIS OF SOW.

To the Editor: During the last few days one of my sows appears to be paralyzed in her hind quarters and now cannot use her hind legs at all. She is very stocky, big-boned and weighs about 350 pounds. She is about a year old and is due to farrow her first litter in about six weeks. She has always been very active on her feet and does not appear to have been injured in any way. She has had good care and feed and the run of the orchard, affording plenty of exercise. If you can suggest a remedy I will be greatly obliged.—E. F. S., Napa.

It is paralysis due to advanced pregnancy. Give 4 ounces castor oil and 4 ounces olive oil. She will recover after parturition.

LOSS OF MILK.

To the Editor: One of my cows suddenly fell off in her flow of milk to a half. She has a few scurvy places about her head and breathes heavy, making a snuffling sound at times, but her throat is not swelled and she appears normal and in good condition. I will be greatly obliged if you can tell me what to do for her.—J. A. D., Walnut Creek.

Loss of milk occurs from any general disease. The scurvy has nothing to do with her sickness. The heavy breathing and loss of milk would indicate some lung disease, and there are so many different kinds and the treatment is so different that I would advise you to consult the nearest veterinarian.

OVER-FAT SOW.

To the Editor: My pure-bred Poland-China brood sow is awfully fat, and I would ask that you kindly advise me, through your valuable paper, how I should feed her so that she don't get too fat. She is bred and it will be her third litter. She was running in the vineyard all winter, and I fed her a handful of barley every day or a few potatoes. Now she has free access to my growing barley field, and I give her half a dozen potatoes every day.—Subscriber, Roseville.

I hardly think you need worry about getting her thin. She simply requires less food. An animal excessively fat brings forth an inferior offspring.

E. J. CREELY.

San Francisco Veterinary College.

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Conclusions on Pig Feeding.

W. P. Snyder, who has had charge of the experimental pig feeding at the North Platte substation in Nebraska, gives the following notes of results:

CORN AND ALFALFA.—We have conducted many experiments to discover the most profitable ration for growing and fattening hogs. Alfalfa has entered into the rations quite extensively. During the summer the hogs have always grazed on alfalfa pasture. During the winter they have had alfalfa hay in some form, excepting where they were in experiments from which alfalfa was purposely excluded. Usually, in the summer, the corn has been soaked without grinding, but in the winter time the corn has been ground and the grain and mill product or chopped alfalfa mixed in the basket and moistened after being put into the trough.

Hogs fed emmer gained very slightly

faster than those not fed emmer, but corn alone produced much faster gains, with considerably less grain. The results have led us to believe emmer is not a suitable grain for fattening hogs.

Compared with rations of corn and barley, and of barley alone, both with and without alfalfa, corn gave faster gains. The addition of barley to a ration of corn and alfalfa always lessened the rate of gain.

Corn and alfalfa have been compared with rations of corn, wheat and alfalfa of wheat and alfalfa. In half of these tests the rations of corn and alfalfa gave the faster gains. With wheat worth 70 cents per bushel and corn worth 47 cents per bushel, the addition of wheat was not profitable in any test. If corn and wheat had been the same price per pound, it would have been profitable to have fed wheat, as wheat produced more pork per pound than corn, even when alfalfa was being fed.

CORN AND CORN SHORTS.—Corn was compared with corn and shorts. In nearly all of these tests alfalfa was supplied to all the hogs either as pasture to shoats or as hay to hogs being fattened. Shorts formed either $\frac{1}{2}$, $\frac{1}{3}$, or $\frac{1}{4}$ of the grain ration. The ration of corn gave the faster gains in five tests out of nine, and in one test tied with corn and shorts. If the price of corn were 56 cents per bushel, the profit would still be in favor of corn and alfalfa rather than corn, shorts and alfalfa. Under ordinary conditions, we do not regard it profitable to add shorts to a ration of corn and alfalfa either for growing or fattening hogs. However, we occasionally use some shorts in the ration of a sow suckling a litter, though we do not know that this is profitable.

Corn has been compared with 9 parts corn and 1 part oil meal, once when alfalfa was supplied and once without alfalfa. In both tests the addition of oil meal was very profitable. The addition of alfalfa to a ration containing corn and oil meal changed the results very little. Further tests of oil meal are being made.

TANKAGE.—The addition of tankage to a ration of corn or of corn and alfalfa has always increased the rate of gain and usually decreased the amount of feed eaten in making 100 pounds of gain. The cost of 100 pounds of gain has usually been greater with the pigs fed tankage, but on account of the greater gain made by these pigs, the lot fed tankage has usually given the greater profit during the fattening period.

We believe that under ordinary conditions, with favorable weather and thrifty hogs, a ration of corn and alfalfa will be more profitable than a ration of corn, alfalfa and tankage. If, however, the hogs are out of condition because of cold, rough weather, or for any other reason, the addition of 5% tankage in the ration is likely to be profitable, even when alfalfa is being fed.

BEST WAY TO FEED.—If alfalfa and corn is the most profitable ration under average farm conditions the question at once arises as to the best way to feed it, and in what proportion. Where the hogs were compelled to eat a pound of alfalfa for every pound of grain eaten, they did not eat enough feed to make profitable gains. We think this is a fairly economical ration for wintering yearling or mature sows, but do not think it can properly be classed as a fattening ration. We winter the mature brood sows on this ration. We winter the mature brood sows on this ration.

We believe that under average conditions, corn alone is a more satisfactory fattening ration than a ration of 3 parts corn and 1 part alfalfa. However, we

find this to be a very satisfactory ration for wintering gilts that are to farrow in the spring when 12 or 13 months old. By feeding this mixture, one may feed all the gilts will eat and produce large frames carrying considerable flesh without danger of bad results at farrowing time. Occasionally we have increased the amount of alfalfa to one-third of the ration, when the gilts were becoming too fat. The average weight of the gilts at the time of farrowing for the last four years is 320 pounds. Yet they have given us absolutely no trouble when farrowing.

BEST WAY TO FEED CORN.—A ration of 9 parts corn and 1 part alfalfa hay has given much better results than a ration of corn alone. The addition of 10% of alfalfa increased the rate of gain, decreased the total number of pounds of food required to produce 100 pounds of gain and decreased the cost of gains. In a ration of 9 parts corn and 1 part alfalfa, the alfalfa was worth more per pound than the corn, as it not only reduced the feed required for a certain gain, but also increased the rate of gain. In a ration

of these proportions, alfalfa meal may give slightly faster gains than chopped alfalfa, but the additional cost of the meal makes it probably the less desirable. We believe the most profitable method is to permit the fattening hog to take the alfalfa as he wants it from a rack. We believe, however, that when feeding alfalfa in this way it is very important that the hay be of the best quality and easily accessible to the hogs. Hogs will not exert much energy to find a poor quality of alfalfa when being fed a full ration of corn.

We find none of the grains give as satisfactory results as corn under ordinary conditions. It would seem that corn and alfalfa form the most satisfactory ration for growing and fattening hogs under Nebraska conditions.

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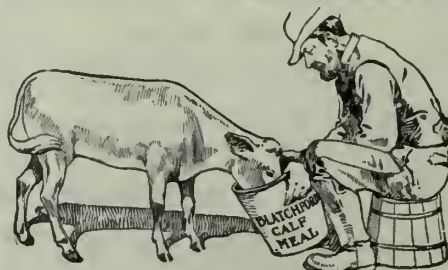
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Who Can Beat Uncle Sam in a Horse Trade?

To the Editor: The United States Department of Agriculture has completed for the present the purchase of stallions for the use in the encouragement of the breeding of horses for military purposes. Four Morgans, 10 Standardbreds, 11 American Saddle horses, and 9 Thoroughbreds have been purchased. These stallions, with four or five Morgans from the Morgan Horse Farm and six Thoroughbreds presented to the Government, will be available for public service during the season of 1913, making a total of at least 44 stallions. Local wishes will be respected and the breed of the stallion placed in a community will be that which is most generally preferred by that community. Accordingly, the Morgans will stand in Vermont and New Hampshire, the Thoroughbreds mainly in Virginia, the Saddle horses and Standardbreds mainly in West Virginia, Kentucky and Tennessee. Furthermore, every effort is to be made to avoid competing with privately-owned stallions, and horses will not be placed in communities which are already well supplied.

The Government has not spared expense in the purchase of horses. The first requisites were that they should be good, sound individuals, and registered in the proper studbooks. Good breeding was therefore essential, and in many cases stake and show-ring winners were obtained, but no horse was bought solely because he was a race winner or solely on account of his pedigree.

These horses will be available for public service on liberal terms. The owners of sound mares, with a square trotting gait, may breed such mares free of charge provided they give the Government an option on the foal during the year it is 3 years of age at \$150. However, the Government will not hold the breeder of a foal to his option if he wishes to be released, but will allow him to cancel the option at any time by paying the service fee. This fee will be \$25 for mature stallions, and less for those under 5 years of age. In buying the colts, the War Department has agreed to purchase both mares and geldings. No service fee will be charged unless the owner elects to cancel his option. If the Government buys the colt, no fee is charged; if the colt is offered to the Government and purchase refused, no fee is charged.

On account of the provision for free service, the Government believes that the mares bred should be suitable for the purpose, and therefore it will be necessary to breed only those which are free from the following unsoundnesses: Bone spavin, ring bone, side bone, heaves, stringhalt, lameness of any kind, roaring, periodic ophthalmia, and blindness, partial or complete. Mares must also be free from manifest faults of conformation, such as curby hocks. Pacing mares will not be bred. Approved mares will be given a certificate of registration in the Remount Brood Mare Register of the Agricultural Department.

Washington, D. C. CORRESPONDENT.

OTHER PRESCRIPTIONS FOR HALTER-PULLERS.

To the Editor: There are two ways that a person might use to break horses of pulling back and breaking halter-ropes when putting on the harness. One good halter-puller is: Put a halter rope or a rope about that size around the horse's body just back of the shoulders. Then pull the horse's head down and back and run a rope from the halter ring back between his front legs and tie it onto the

rope you have around his body. This will make it so that when he pulls up on the halter rope he will be pulling on the rope around his body instead of the halter. The result of this is that the pull on the rope on the top of his back will make him flinch and he will soon quit pulling. I used this same method in breaking a colt to lead when he was obstinate and would not come when I wanted him to. A few pulls on the halter rope with this device on and he was glad to follow me wherever I had a mind to go.

In case this method should fail to work, use the following, which is a much more severe one. Put a crupper under the horses tail and from there run two ropes (about the size of a halter rope), one on each side of the horse so that the pull will be straight. Pull the horse's head back in the same manner as on the other one and fasten the two ropes to the halter ring. Then if the horse pulls up on the rope, the pull will be on his tail and he will soon quit. One must be careful on either of these and keep away from the horse's heels as he might make a kick at you. This would be more likely in the last device than the first. Both these means are used in breaking horses to lead and since they work there I don't see any reason why they shouldn't work in the case spoken of in your issue of the 22 inst. These are the best halter-pullers that I know of. Perhaps, someone has maltreated the horse and thrown the harness on him hard instead of being gentle and kind to the horse while putting the harness on. It is a good plan to put the harness on easy and then the horse won't think that you are going to hurt him.—R. S. Taylor, Mokelumne Hill.

ANOTHER TWIST OF THE ROPE.

To the Editor: To stop halter pulling, take a 1/2-inch manila rope and make a running noose around the horse's belly, with end through the halter and tied firmly to a post or manger. This usually does the work after a few lessons.—T. Kitchener, Westlake.

GIVE HIM A FALL.

To the Editor: As I did not see any answer to the inquiry in regard to a horse pulling back in the stall when you go to put the harness on him, will you just tell the party to watch the horse very closely and go at him quick to put the harness on so he will pull back very hard, and have a good sharp knife and cut the rope so he will get a good tumble, and I will guarantee it will be the last time he will pull back, which has been my experience with quite a number. Hoping your subscriber will have good luck.—G. S., Concord.

STILL ANOTHER SUGGESTION.

To the Editor: If the party who has the halter-breaking horse will take a strap with buckle and put a ring on hind leg at ankle, then take rope about fifteen feet long, tie one end in halter ring, run the other end through hole or ring in manger and back and tie in ring on hind foot. Now let him try it.—F. W. W.

A RING AT THE KNEE.

To the Editor: In the RURAL PRESS of March 22, R. A. W., of Amedee, asks remedy for a halter-puller. A horse breeder told me that he once bought a fine mare cheap because of this habit and broke her of it by placing a strong ring in the manger and buckling a strap with another ring just above the knee, then ran the halter rope through the ring in the manger and tied end in the ring at the knee. When the horse pulls back he pulls one leg out from under him, and that is what cures.—P. Alling, Lodi.

COMMUNITY BREEDING MAY CHECK DISEASES.

(Continued From Page 423.)

The secretary would be required to keep an accurate set of data showing the name or number of each cow in the cycle, date bred, and date calf was dropped. This data would be at the disposal of any member at all times, so that he could tell just when his neighbors' cows were bred, etc. In this manner very little chance of crooked work on the part of the secretary or members would be possible, even should it happen at all, which is very doubtful, as anyone who would support such an organization would hardly care to jeopardize his neighbors' stock.

After the first year such an organization could be pretty sure of success, but securing good honest men for the beginning would be the most difficult part, it would seem.

In this manner, not only the very good results from better sires would be accomplished, but with several such organizations in each district the question of abortion would finally disappear, and those who first adopted the plan would benefit greatly by it, as, if it were generally known that their cows were in the organization, better prices could be received and less trouble would be encountered in disposing of them.

Abortion differs from tuberculosis in that the city health officers do not bother their heads over it, and therefore it falls upon the dairyman entirely to eradicate it, and in past experience it has been proved that co-operative methods are the best means of success, and while the above plan may not solve the question, it would seem some such plan is necessary in order to overcome this heavy financial drain on the dairymen of California which is increasing each year.

A. MAILLARD, San Rafael, Marin Co., Cal., breeder of Jerseys. Calves for sale.

The above ad. was run in the Breeders' Directory of the Pacific Rural Press dated December 2, 1876. Our present herd has been built up from the foundation established in 1868 and is at present the oldest and largest herd of Pure Bred Jerseys in California.

We have a few young bull calves ready for present delivery from some of our best cows.

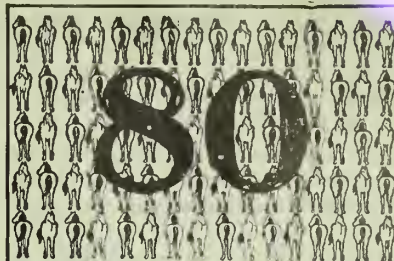
RANCHO DOS RIOS,
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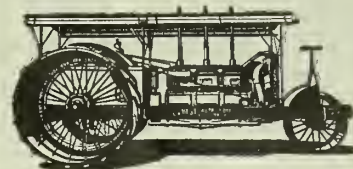
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Pomona, Cal.

Some Practical Ideas.

[Written for the PACIFIC RURAL PRESS by
SUSAN SWAYSGOOD.]

To be a good poultryman one need not be a poet nor an artist, a dreamer, nor a lady-killer, but one does need to be able to look at things from an artistic point of view, and a little poetry and dreaming adds spice to the daily fare of plain practical work; for poultry raising is intensely practical in every way, especially when we deal with the plain utility side of it. I don't think it would be possible for me to stand it if I did not combine the fancy with utility. But it is a fact that a great many practical ideas come from studying the birds from the fancy side.

How to mate for color, how to increase the size and vitality—all these questions are first considered from the fancier's side of the question, and yet they are also very practical in their bearing and all belong to the utility side of poultry raising.

The charm of poultry raising lies in its many sided yet continuous round of little things. And all the little things call for attention and thought, none can be neglected if we are to succeed. Sometimes we fail in spite of all we can do, then there is nothing for it but to try again, and next time try to remedy the failure, for somewhere there was a cause for it.

TO GET SIZE.—In the large breeds size is most important, and it is one of the things most beginners fail to get. If the eggs are bought or raised from immature, undersized stock it is hardly possible to get very large birds, no matter what care is given. But this is one point we should find out before starting out to try for size. Given good size in the parent stock, especially on the female side, it all lies in the care and feed. Oats, that is, good meaty oats, make bone, and in feeding we should make a point of feeding for bone, for unless the bony structure is built right we can never put

flesh on. Now I make a point of keeping all water away from my chicks until they have had some food, as I don't want them to fill up on water, for it takes solids to build bone and muscle. When they have been feeding a few minutes I serve the water, always with the chill taken off. And again, the aim should be to hold back too much flesh-forming food until the bone is well under way. Size is a matter of time, but the foundation is started during the first few weeks of a chick's life. So we should make a right start if we are to reach the goal.

COLOR.—In color we do really need to be a little artistic, for unless we have an eye to color we never will get very far ahead, and there is nothing adds to the pleasure of feeding and caring for stock so much as the knowledge that they are a good color. In the fancy, fine feathers alone do not make fine birds, for with the feathers goes size, type and many other little things, yet it is a fact that color plays a great part in winning the prize; and rightly so, for who would want to see a lot of birds of a faded-out dirty color in a poultry show?

In white birds, after the molt we often see a creamy cast to the feathers, and some people think this is what is termed brass, but if we wait until the feathers get mature this creaminess almost always passes off. The way to tell whether it is from the newness of the feathers is to open up the feathers and examine the quills. If the creaminess seems exaggerated at the quill, that is, if it shows more under than on top, it is a sure sign of immature feathers and will go away with time. Ours is a very hard climate on white birds, and any bird that stays white if left out in the open is a good one to breed from just for color. If he lacks other qualities never mind, they can be supplied through the females, in one or two generations. Rome was not built in a day, and in breeding for special qualities we have to think of that and be patient, always keeping the ideal in mind and working toward it.

BUFF.—In mating buff varieties, extremes should always be avoided. A light male and dark colored hens always produce more or less mealiness in the feathers. If the female is about the color of the male's breast you will get a more even surface color, and after the surface color is once obtained it is an easy matter to breed for under color. A nice even buff from head to tail is worth striving for, whether we exhibit or not; fine poultry add to the charm of country life and make the farm something for strangers to remember.

There is no prettier sight than a few nice black or buff bantams picking on a nice well kept lawn; they attract the attention of nearly every passerby, and the children of the neighborhood will spend hours watching them. The grass adds to the lustre of the feathers, and in feeding all black and buff varieties this should be remembered: During the molt, when the new feathers begin to come, feed plenty of good fresh alfalfa or clover, and the shine will be there.

MOLT PRACTICES.—The practice of keeping molting males in the breeding pens is all wrong. The sexes should be separated, the hens to recuperate their vitality and the males to complete their new dress and get a little vim into them. Growing new feathers is rather more of a strain on male birds than it is on hens. Usually the head feathers are slow to fall out and need help. In this case it is best to pull a few feathers every day or two so that the new feathers may get started. It ought to be clear that if all the vitality can be spent for molting alone, the

birds will molt quicker than they will if half the vitality is spent in the vain endeavor to breed out of season, and it takes much longer to accomplish the task.

PATENTS

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HIGH PROTEIN

Meat Meal Bone Meal
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It saves expense and
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Selected and mated to Imported stock cockerels.

BABY CHICKS at \$12 per hundred. May and June deliveries \$10 per hundred.

EGGS \$6 per hundred in lots of less than 1000 eggs. Orders in excess of this, 10¢ per dozen above highest market price one week before shipment. 75% fertility guaranteed.

TO make room for young stock we offer 4000 two-year-old hens in full laying for \$15 to \$18 per dozen. 1000 one-year-old hens for \$18 to \$24 per dozen.

8000 hens yarded—sanitary conditions perfect.

WELL RAISED—WELL CULLED—EGGS WILL PRODUCE LAYERS.

Pullets in full laying from \$12 to \$15 per dozen.

UTILITY STOCK

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S. C. White Leghorn CHICKS :- EGGS

Don't place your order for chicks or hatching eggs before you hear from us.

Our quality of stock and low prices combined are sure to be of vital interest to you.

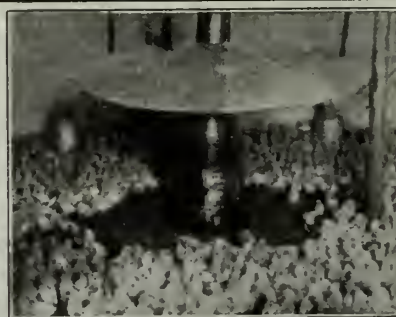
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This picture is from an actual photograph, and the stove is the original and only perfect oil stove made. This stove has REVOLUTIONIZED the rearing of BABY CHICKS. It is

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and has proven to be the most successful brooding and heating stove on the market. Awarded Gold Medal for most meritorious California invention at California State Fair. Perfectly safe, simple, easy to manage. Burns Stove Distillate, Engine Distillate, Coal Oil, and, in an emergency, can burn Wood or Coal. For full particulars write

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I deal direct with the consumer. If I had agents to sell my product it would mean that I must add to my price as much as the agents' commission would be. My lumber is bought direct from the forest. Latest improved machinery. Up-to-date methods. Redwood Tanks, Picking Boxes, Peach Boxes, Drying Trays, Egg Cases. A tank 5 ft. diameter, 2 1/2 ft. deep, \$7.50. A tank 6 ft. diameter, 2 1/2 ft. deep, \$10.50. Large stock of tanks of various sizes in stock. Anything made to order on short notice. Spraying tanks. Grape stakes.

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A few choice cockerels and pullets left.
Eggs for hatching after January 1st.

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MAMMOTH BRONZE TURKEY EGGS From the largest and best pure-bred flock in the world. All turkeys carefully selected, and combine the greatest prize-winners and the best blood of the East and Middle West. They have large bone, long deep bodies, full breasts, brilliant plumage and are healthy. No inbreeding. Write for further information. Geo. A. Smith, Corcoran, Cal.

OUR GOLDEN ANTLERS AND SILVER CAMPINES took several first prizes both for the fowls and the best white eggs at San Jose, November, 1912. From Jan. 1st to Oct. 31st, 23 hens laid 4148 eggs, and are still laying. Crystal White Orpington and Antler pullets for sale. Eggs, \$1.50 per 15. S. & B. G. HAIGH, Route 2, Box 4C, San Jose, Cal.

THE MANOR FARM RHODE ISLAND REDS have won more prizes, cups and specials during this season at the big important shows than all their competitors. They have the typical shape and rich red color. Eggs, chicks and breeding stock all the year round. Exhibition or utility and satisfaction guaranteed. The Manor Farm, Petaluma, Cal.

THE MANOR FARM HATCHING EGGS—Day old chicks and stock from best quality. S. C. White Leghorns, S. C. Black Minorcas, Barred Rocks and Orpingtons. Send for illustrated price list—it's free. The Manor Farm, Petaluma, Cal.

WESTERN HATCHERY—Fred Dye, Proprietor, successor to Dye & Fredericks. Now booking orders for day-old chicks, from heavy-laying strain White Leghorns. Prices on application. Box 2, Petaluma, Cal.

PIGEON BARGAINS—Fine young Homers, \$1.00 mated pair. Large Runt crosses, \$2.00 mated pair. Thoroughbred Carnaux, \$3.00 mated pair. Discount for quantities. Sunny Slope Squab Farm, Healdsburg, Cal.

FOR SALE—Squab breeding pigeons. Carnaux youngsters from pedigree strains, \$8.00 per doz. Six weeks old. Write for particulars. Buckner's Pigeon Farm, Santa Rosa, Cal.

WHITE ORPINGTONS. The finest of thoroughbred breeding stock for sale at all times. Eggs for remainder of season \$3 per 15. Jeanne A. Jackson, Oroville, Cal.

CROLEY'S POULTRY CONDITION POWDER—A tonic for Poultry. 25-lb. Galvanized Pails, \$2.00. 5½-lb. can, 50c. 2½-lb. can, 25c.

BABY CHICKS.—Eggs for hatching. Buff Minorcas, White Orpingtons, White Plymouth Rocks, White Leghorns, thoroughbred Hoganized stock. Mrs. C. A. Sanford, Mountain View, Cal.

PHEASANTS—Ring-necked China pheasants for sale; also eggs in season. Address T. D. Morris, Agua Caliente, Sonoma Co., Cal.

BROWN LEGHORN ROOSTERS, chix and eggs, same in Barred Rocks, White Minorcas. W. S. Rose, Yuba City, Cal.

ORPINGTONS—Buff and White. Trios, \$10 up. Eggs, \$3 to \$5 a setting. Chicks, 30 cents each, incubator lots. Mrs. S. Swaysgood, R. 2, Pomona, Cal.

S. C. WHITE LEGHORNS—Heavy layers, California's greatest prize winning strain. Eggs, chicks, stock. Send for list. M. Dutterbernd, Petaluma.

CHICKS—White Leghorn, White Rock; high-class stock. Send for booklet of prices. Mahajo Farm, P. O. Box 597, Sacramento, Cal.

FOR SELECTED EGGS AND CHICKS, from S. C. White Leghorns, see Hopland Stock Farm advertisement.

BABY CHICKS, from heavy layers. White Leghorns, Barred Rocks, R. I. Reds. Free folder. White Hatchery, Petaluma.

BUFF ORPINGTON AND COLUMBIAN WYANDOTTE; eggs and stock. Mrs. Leona Brophy, 1415 N. St., Fresno.

BARRED ROCKS ONLY—Now is the time to order your eggs and hatched chicks. Send for price list. G. L. Hawley, Madera, Cal.

BARRED PLYMOUTH ROCKS, White Minorcas, White Holland turkeys. Stock and eggs only. L. N. Cobbledick, Oakland.

CHICKENS, DUCKS, GEESE, GUINEAS, Pea fowl. Address Wm. A. French, 545 W. Park St., Stockton, Cal.

TRAPNESTED S. C. WHITE LEGHORNS. Eggs, chicks, stock. A. R. Schroeder, Box P, San Gregorio, Cal.

WHITE LEGHORNS—Chicks, eggs, cockerels. Fine stock. Reasonable. O. B. Morris, Lodi, Cal.

CROLEY'S DRY MIXED INFANT CHICK FEED—The first feed for your baby chicks.

BRONZE Turkeys and Eggs. Ed Hart, Clement, Cal. Large size, good plumage, early maturity.

TWIN OAKS FARM—W. H. Bissell, Proprietor, Livermore, Cal.—Buff, White Orpington.

FORTY-THREE YEARS OF FAVOR.

To the Editor: Enclosed please find check for renewal of subscription. This makes over 40 renewals I have sent in, as I have been a subscriber from the first issue. Can you tell me just how long that has been, for I have forgotten the exact date? I could not get along without the RURAL PRESS. I am a rancher, mill man, and also keep a general merchandise store. I do an all round business here and also have a fine property close to Chico, a part of the Bidwell Sub-division.

We are having the driest time this country has ever experienced for the time of year since 1861, that is the time we came across the plains from Dubuque county, Iowa, and settled here in Honey Lake valley, Lassen county, California.

This county is going to come to the front now. We have now three lines of railroads, the N. C. & O. (the oldest), the W. P., and now the Fernley, Lassen. The last named will be built to the county seat, Suisunville, by April 15, 1913. They are laying close to three miles of track each day. This county has never had a failure of crops yet since I have been here, and I have seen the lake dry three times in three years at one time. I could tell you enough about this county since I came here a boy of ten to fill a book a dozen times, but won't try to this time, for I don't know if you care to know about it as you don't print that kind of a journal, you print a farmer's paper and that is just the reason I have stayed with it all these years, for I have farmed all my life, and am still in the business, and if you should ever come up this way I should be pleased to entertain you. You have my best wishes for our beloved paper. G. R. WALES.

Milford, Lassen county, Cal.

[The old friends make this journal strong and enduring, for good old friends help to make good new ones.—EDITOR.]

OBJECTIONS TO ALFALFA IN ORCHARD.

To the Editor: In regard to growing crops in an orchard, I have been interested in watching an acre of ground here, planted to young peach trees and alfalfa. The land is good river bottom soil, trees about 4 years old. The first two years, water was hauled and three or four buckets of water put around each tree, last year water was pumped, and the ground flooded once. During the flooding, over 100 gophers were killed with a shovel. The trees are now about twice the size they were when planted, and the alfalfa has produced from 1½ tons to 2½ tons a year.

It is my belief that the small amount of water hauled to trees was sucked away from tree roots by the alfalfa in a few days, also that the alfalfa made an inducement for an extra crop of gophers to work on the tree roots.

I think this method is a losing game on land worth \$400 an acre. I like to see young trees make a strong healthy growth and plenty of cultivation at the proper time is a leading factor in obtaining it.

This is impossible where alfalfa is grown for hay between the trees.

Yuba City. R. A. THOMPSON.

DISPOSING OF SEPTIC WASTE.

To the Editor: I have been reading the articles on the septic tank this winter, and I am going to tell you my experience. I put in a two department tank, and what I want to explain is how I got rid of the water from the tank. I piped it off for 70 feet from the tank with 4 inch sewer pipe, and at the end of the run I bored a

well down about 20 feet deep, went 9 feet into water. This was done with a common post auger by connecting a 20 foot length of ¾-inch pipe and the aid of a pipe wrench. I went through about 4 feet of fine gravel and a small strata of clay, and then into sand. I stopped in the sand. I cased this hole clear to the bottom and perforated the casing all the way down, connected my sewer pipe to it, laid a sack over the top of the hole, made a bucket of concrete and carried over the sack and covered that all up with earth, and have no trouble whatever. I think that will take the sewage for all time to come, for water will seep to its own level. That man in Sanger that had so much trouble with his sewer, I think would be glad to know this, and if you wish you can mail this to him. Hoping it will do some one some good. Gustine. L. T. HILL.

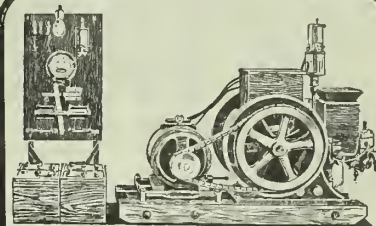
EXPOSITION CHIEF OF AGRICULTURE.

The board of directors of the exposition have appointed Thomas G. Stallsmith of Chicago, chief of agriculture in the division of exhibits. As the result of a number of years spent in representing large manufacturers of agricultural implements, Stallsmith has a wide acquaintance not only in this country, but abroad, and is considered an expert in his line.

For about 12 years he was the representative of an amalgamation of agricultural implement manufacturers in foreign countries. He comes here to assume his new duties with the endorsement of the agricultural interests of the country. He will have charge of the Agricultural building and the pure foods exhibit, which will be one of the biggest departments of the exposition. Because of a long residence in Los Angeles, where he maintains a winter home, Mr. Stallsmith has a deep interest in the development of the State and the success of the exposition.

He is gratified to find that so many

applications had already been received from exhibitors for space in this department. From his observation he said he was confident that the biggest manufacturing interests would have a full representation here in 1915.



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You can enjoy the comfort and convenience that electricity brings—a home equipped with better, safer light and handy power for the whole farm. The

Rumely Automatic Electric Lighting Plant

will furnish cheaper electricity than the kind city folks buy.

The Rumely Electric Lighting Plant is automatic from starting the engine to priming the carburetor—storage batteries fill automatically; automatic oiling system which starts and stops with the engine; heat coils and intake valves adjusted by governor at start.

This outfit will work for you with almost no trouble or care.

It's built to give satisfactory service at the lowest cost. New to you, maybe, but thoroughly tested.

The Rumely Automatic Electric Lighting Plant comes in five convenient sizes—to light 75 to 500 8-c.p. lamps.

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The Soil Works While You Sleep



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in the fertile Sacramento Valley. This soil will grow anything. Unlimited water supply, towns, schools, churches, big market close at hand, unexcelled climate.

10 YEARS TO PAY FOR LAND NO SECOND PAYMENT FOR 4 YEARS
We have some very fine developed alfalfa land for sale. Mail us the coupon now.

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AGRICULTURAL REVIEW.

Organizations.

The completion of the organization of the California Cured Fruit Exchange associations which were projected in Sonoma county has come along nicely. The Geyserville and Santa Rosa associations will both be put into operation with a large and enthusiastic membership of fruit-growers.

The Sutter County Association is to construct a large warehouse for handling the fruit of the members.

An organization to cover the beet-sugar interests on the Pacific Coast has been formed with L. J. Howard, of the Union and Alameda Beet Sugar companies, as president, and Robert Oxnard, of the American Beet Sugar Co., secretary. There are fourteen factories represented as charter members.

The Pacific Fruit Exchange, which has been invited to join the California Fruit Distributors, has decided to remain independent as heretofore.

An Anti-Smelter Fumes Association has been formed at Benicia, with the object of having an injunction against the Selby smelter plant enforced. J. J. McCoulogue is president and C. M. Prince secretary.

The Tulare Co-operative Poultry Association has completed organization. The shares will cost \$25 each, one member to have only one share. The poultry and eggs will be marketed through the Los Angeles salesrooms of the Dairymen's Co-operative Creamery of Tulare.

Land Development.

Practically all of Reclamation District 536 in Solano county has been secured by the Solano Irrigated Farms Company.

A high-water mark for land prices for large tracts in Merced colony lands was made recently when E. B. Biddle, of Tennessee, purchased the 100-acre ranch of W. P. Graves at \$225 per acre. The land was only partly improved, but will be set out entirely to fruit and alfalfa.

The Bidwell Rancho Chico Co. has purchased from T. B. Gibson, Woodland, 320 acres of land three miles west of Woodland, which it will irrigate from wells and put out to alfalfa for subdividing.

Rapid development in the reclamation work on the Suisun marshes is being made. A new lot of leveeing will be made on 1773 acres just south of Suisun, belonging to a number of different owners, working together. Work in reclaiming 1455 acres just west of the railroad and next to the above-mentioned tract has been completed and the land is being broken up for planting.

The latest subdivision of the Burgess company in the Mt. Diablo country behind Oakland is Lafayette Home Sites, at the old townsite of Lafayette. The land will be sold for small farms for persons who wish to travel to and from their work in Oakland and San Francisco every week day.

Stock Notes.

Ruby & Bowers had 20 head of horses arrive from Europe in March, and made 32 sales during the month. A carload of Percherons and Clydesdales will arrive April 12. One very fine pair of imported Clydesdale mares were sold to Mr. Carson, of Winters, for \$1600.

Mules are in such demand throughout the State that buyers from the Imperial valley who recently spent some time around San Joaquin county were able to secure very few animals. The last four needed to make up the carload brought \$250 each.

Henry Miller, who for long has owned much more land than any man in California, recently purchased another 10,000-

acre range. The land lies around Mount Madonna and is partly in Santa Clara, partly in Santa Cruz county.

Prices for steers at the Portland stockyard for the week ended April 4, averaged between \$7.75 and \$8. The swine market touched \$9.90, but soon dropped back to \$9.75. The market was steady at that figure. Prime wool yearlings sold at \$7.25 and ewes at \$6. No lambs were offered.

The David Jacks Corporation recently sent a carload of pure-bred Hereford bulls to the Tajon ranch, Kern county.

Shipment of beef to the United States from Australia received a setback recently when a lot coming on the Sonoma was held up through a difficulty regarding inspection and stamping of same.

Dairy Notes.

The Yolo county board of trade is endeavoring to secure a milk condensary for the county.

What is said to be the largest single shipment of butter ever leaving Modesto was sent out the other day by the Stanislaus Creamery, who shipped out to San Francisco 200 boxes of extra butter. Each box contained 60 pounds.

Morris & Sons, of Woodland, have the distinction of having the two best records reported to the Holstein-Friesian Association for the week ended March 8, 1913, which has just come to hand. These are Jane Korndyke of Riverside, age 6 yrs., milk 575.5 lbs., per cent fat 4.37, fat 25.178 lbs.; and Aralia De Kol, age 12 yrs. 5 mos. 25 days, milk 742.3 lbs., per cent fat 3.23, fat 24.108 lbs. During the month this cow made 97.841 lbs. fat, and evidently is in line to make her 1,000 lbs. of butter, in spite of her advanced age, for the second year running. The fourth cow in the aged list also comes from this herd and is Aggie Acme of Riverside, with 22.678 lbs. fat. All three are California-bred cows, Aralia coming from the herd of Mrs. Sherman of Fresno, and the other two from the former Pierce herd, Stockton.

Residents of Stoneyford, Colusa county, are putting up the money for a creamery, which the great growth of the dairy business in the vicinity is making necessary.

The Hillier Sale.

The Hillier Jersey sale near Modesto last week brought dairymen from all parts of California. The entire number of cattle listed, 33 head, were sold and brought \$4,075. The highest price ever paid at auction for a registered heifer calf in the San Joaquin valley was paid by A. L. Leitch, of Oakdale, for Erie's Exile Favorite, which brought \$180. He also paid \$350 for Alene of Meadowbrook, which was the highest price paid at the auction. Jack London, the novelist, laid the foundation for a fine herd of pure-bred Jerseys, getting seven head. The sale was a big success. A delegation of University Farm students attended to learn about pure-bred cattle. They also visited several leading dairies in the county.

The average test of the last lot of Ayrshires recorded by the Association was 4.03, the average milk production for the year 9,483, and fat, 382.05. That is, for all ages. The full-aged cows averaged 11.778 lbs. of milk and 458.76 lbs. of fat.

Irrigation Development.

The formal opening of the Oakdale and South San Joaquin Irrigation districts occurred last Sunday, with a large attendance from the districts and elsewhere. The work has been completed, and 140,000 acres of the richest land in California, in northeastern Stanislaus county and in

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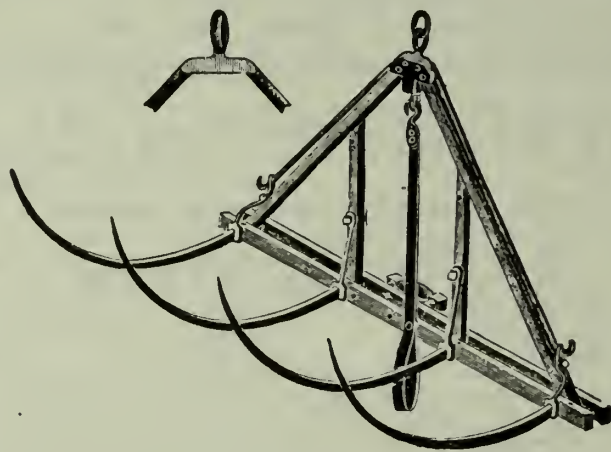
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PEERLESS IRON WORKS, Sacramento, Cal.
Mention Rural Press.

southern San Joaquin county, will receive the water necessary to make them most valuable and most productive. The enterprise has meant an expenditure of \$6,000,000. Governor Johnson was unable to be present, and the speaker of the day, occupying his place, was Senator Mott.

Farmers of Tracy have decided to take active steps to have water brought to the rich lands on that part of the West Side. A call was made for a meeting of about a dozen farmers to arrange the preliminaries for the formation of a district, and more than 50 came. Engineers are to examine into the prospects for water, and a committee will see about the possibilities of financing the development. H. A. Hull was elected secretary and delegate to the San Joaquin Valley Water Problem Association.

The Moulton Irrigated Land Co. recently gave up waiting for rain and started the pumps going on several hundred acres of land near Princeton, Colusa county.

Water users of the Truckee river have petitioned the Government to take action to drain the Truckee Meadows, thereby increasing the flow of the river during the irrigating season.

An excellent flow of artesian water has been secured by W. G. Hunter on the Fields tract northeast of Suisun. Further borings will be made to discover the amount of supplies and the average depth at which it can be struck.

The big pumping plant of C. E. Taylor at Tipton is being changed over to the use of electric power in place of steam. The well is one of the finest in the State, giving a discharge of 4000 gallons per minute. A reservoir with an area of 60,000 square feet and five feet has been constructed and the pump in the future will be kept going steadily.

Land Sales.

The Visalia Land & Investment Co. has purchased 2,000 acres of land near the Vandalia colony below Porterville.

S. L. Wines has purchased 23,000 acres of the Seventy-One ranch near Elko, Nevada.

The Western Building & Investment Co. has purchased from E. L. Blanchard the Adams rancho in Stanislaus county. The ranch will be subdivided.

The Turpin grain ranch of 640 acres has been sold to the Harder brothers of Snelling. It is just south of the Stanislaus-Merced county line.

Other large sales are: By E. T. Gobin, of 2800 acres near Waterford to the Waterford Development Co.; of the Schuler ranch of 480 acres of land on Dry creek near Galt to William White and George Terry, hop growers; of 2500 acres near San Fernando from the San Fernando Mission Land Co. to the Los Angeles Mesa company.

The town of Chowchilla, Madera county, will have a station from this time on, as the Southern Pacific trains will stop there instead of at Minturn, as heretofore.

Fruit Planting.

The Miramonte Apple Land Co. is reported to be planting out 10,000 apple trees, 1600 acres, in the foothills behind Reedley, Fresno county. Owing to shortage in stock, the planting has been limited.

William Kirkman, Jr., of the Kirkman Nursery Co., is to plant five acres in the Kings county thermal belt, where the Kings river issues from the mountains, to avocados (alligator pears) as an experiment. This will be the largest planting of this fruit by a big margin in the big valley.

A letter from the Sacramento Valley Irrigation Co. states that it has finished

planting out the first block of 500 acres to fruit at Monroeville and has irrigated it twice, getting the water down five feet into the soil. Every tree has started and is making good progress.

The first lot of citrus trees for the season's planting in Tulare has arrived at Strathmore.

Fruit Notes.

Reports of frost injury to fruit are said to have been overestimated. Word from Chico is to the effect that the peach and prune crops have been very little hurt by the cold, although almonds were badly hit. In Shasta county, almonds, apricots and Kelsey Japan plums were the only fruits that were badly injured by the frosts of March 13 to 15.

Several sales of apple groves near Sebastopol were recently made for \$1,000 per acre and better, showing what growers think of the prospects of the Gravenstein apple.

A number of contracts have been entered into for wine grapes around Clovis, Fresno county, at \$10 per ton.

Miscellaneous Notes.

An extensive distribution of Turkish tobacco seed is being made in the vicinity of Dinuba for experimental purposes.

A cannery is to be erected at Terra Bella this year.

Armour & Co., it is reported, will put out 12,000 acres to rice on the Feather river near Nicolaus, 3000 acres being already prepared for the crop.

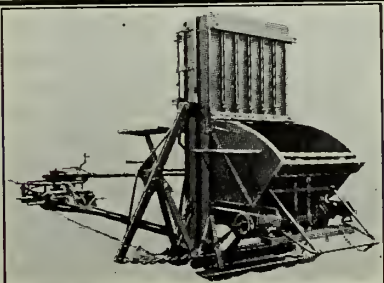
The samples of cotton which the U. S. Department of Agriculture have been storing in vacuum tubes since 1910 as a standard for judging other cotton have been opened and found to be in exactly the same condition as at the start.

A total of 15,000 acres of land belonging to many different owners has been secured in a strip between Nelson in Butte county and Butte City in Glenn county by Gustave de Brettville. The price paid was approximately \$1,000,000. Sugar beets and rice will be the main crops planted.

J. B. Neff, conductor of Farmers' Institutes in southern California, has announced the following institutes: Glendora, April 22; Banning, April 23; Beaumont, April 24; and Thermal, April 25 and 26.

A branch of the California Poultrymen's Protective Association was recently perfected at Sebastopol with the election of the following officers: President, P. R. Lyding; vice-president, W. V. Erickson; secretary, John Bovey.

The Granite Rock company has established a mushroom plant adjoining its rock quarry near Aromas, Monterey county. One shipment was made to Honolulu.



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Now, please read that all over again.

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STOCK RANCH

Situated at the mouth of the beautiful Arroyo Seco Canyon, ten miles South of Soledad and six miles southeast of Paraiso Springs, see map of California. This ranch contains a total of 1500 acres; 900 acres of farm land sowed to grain and alfalfa, and 600 acres of fine grazing land. On the ranch are 60 mares, 30 yearlings and two-year-old colts, 20 head milch cows, 175 head fine hogs, one large imported "Jack" stands 16½ hands high, one pure-bred Percheron imported stallion. This ranch is thoroughly equipped with a complete stock of farming implements, all in first-class condition; has a house of 8 rooms and bath, 2 barns, blacksmith shop, granary, wagon sheds, one 15 H.P., one 6 H.P. and one 2 H.P. gasoline engines, electric lights, and one 15 H.P. motor and irrigating pump, telephone and all the conveniences of an up-to-date farm. A complete ranch watering system installed at a cost of \$1000; also a vegetable garden of 4 acres; \$1000 can be realized from oak wood each year. Forty horse and mule colts are due this spring. This is a snap for \$67,500. Write me immediately.

KARL T. ROMIE, Soledad, Monterey, Cal.

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\$25 ACRE WITH WATER RIGHT

We have 1200 acres of land carrying water right which we are going to sell in the next thirty days. Some as low as \$25 an acre. You can buy any size tract from ten acres up. Will grow good alfalfa. Water right alone worth more than price of land. Level and inexpensive to seed. Good grain land.

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You can get several hundred acres in one body. So cheap you can afford to buy it for range. So good it will pay as big returns as high-priced land.

Close to town, schools, railroad, good roads.

All the cows you want furnished on butter-fat payments. Free pasture.

Great opportunity for joint dairy and young stock ranch.

Only one-tenth cash will take this land. You can get practically your own terms on the balance. It is a snap. Come look it over and make an offer. It is all going to be sold in the next thirty days.

Come at once, or write to
**LOS MOLINOS LAND CO.,
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Dairy route; only wagon in town; 18 cows and necessary equipment. Address W. B. Smith, Lakeport, Cal.

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FARMS WANTED—We have direct buyers. Don't pay commissions. Write describing property, naming lowest price. We help buyers locate desirable property free. American Investment Association, 93 Palace Bldg., Minneapolis, Minn.

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AVOCADOS (budded), Feijoas, Cherlmoyas, and other subtropical fruiting plants and trees. We have the largest and finest stock of budded avocados, and the best varieties. We grow only subtropical fruits of proven adaptability and sterling merit. Send for pamphlet. **WEST INDIA GARDENS, Altadena, Cal.**

"LIPPIA"—the Drought-Resistant Lawn Plant—handsome as bluegrass and ten times hardier—poor soil, hot sun no drawback—never becomes a pest. Write for circular to **JOHN SWETT, Martinez, Cal.**

FEIJOA—This superb new fruit is hardy all over California. Sure to be one of our great commercial fruits. Write for prices. **COOLIDGE RARE PLANT GARDENS, Pasadena, Cal.**

FOR SALE—20,000 rooted seedling olive trees, ready to be set in the nursery. This stock will be large enough to bud or graft this fall. **G. A. Lathrop, 605 Delta Bldg., Los Angeles, Cal.**

NURSERY TREES, fruit and ornamental. Nearly all varieties to be seen on our experimental place near State highway. **LEONARD COATES NURSERY COMPANY, Morganhill, California.**

FOR SALE—Sweet orange seed-bed stock; fine two-year-old trees can be budded soon; not hurt by frost. **R. TOON, 1337 W. 24th St., Los Angeles, Cal.**

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The Home Circle.

A Great Surprise.

When I woke up this morning, I did not feel at all like getting up. I told mamma that I had a kind of feeling as if I should be a great deal better if I stayed in bed till noon, as I do sometimes when I have bronchitis, in the winter. But mamma smiled and kissed me, and said she thought it would be best for me to get up. So, of course, I had to. All the time I was dressing I kept feeling worse and worse, and I didn't want any breakfast at all. "The child isn't well," said papa.

I told him that I thought I should feel a great deal better in bed, and he looked at mamma to see what she thought; but mamma shook her head, and said I would be better by and by.

I knew what she meant by that, and it only made me feel worse. So, after breakfast, I went and lay down on the sofa and shut my eyes; and I did feel very badly indeed. Polly came and sat by me, and fanned me, and asked if my head ached; but it wasn't my head exactly. It was a feeling inside me as if my heart kept going down and down, and then almost stopping, and then going on again with a jump.

When I saw mamma coming with her bonnet and cloak on, my heart jumped very hard indeed; and I shut my eyes tight, and hoped she would think I was asleep. But she took my hand, and said—

"Come, Tommy dear! Come with me, and we will have it all over very soon." I knew from the way she spoke that nothing was of any use, and that I must go.

We started, and I walked as slowly as I could; and all the time I felt worse and worse.

I asked mamma if people did not die when their hearts stopped; and, when she said, "Yes," I told her that my heart kept stopping all the time, and that I thought I might be going to die. "And, if I am going to die," I said, "there is no need of my going—there,—too!"

Mamma only patted my shoulder, and told me to a brave boy; but I didn't want to be a brave boy. I wanted to go home.

However, I tried to hold my head up, and, by the time we came to Dr. Wilson's door, mamma said I was doing very well, and that she should be very much pleased with me if I was brave.

It is very nice to have mamma pleased with you, her voice sounds so nice, and her eyes shine when she smiles. So, I tried as hard as ever I could; and, when Dr. Wilson came out and looked at me over his spectacles, I said, "Good morning!" quite loud, though my voice sounded as if I were under a feather-bed.

So then I got up into the horrid, horrid chair; and my heart was going so hard that I thought it would come out of my ears. I opened my mouth, and he fished about with the dreadful little steel things, and I screwed my eyes up tight, for I knew every minute that it was going to hurt dreadfully.

But suddenly he stopped, and I opened my eyes. He was standing looking at me; and really his smile was quite pleasant, not half so much like an ogre's as I thought it was.

"Well, doctor," said mamma, "is there very much to be done?"

Then Dr. Wilson smiled again. "My dear madam," he said, "I am obliged to tell you—that this boy,"—here he looked very hard at me, and my heart stopped again,—that this boy—has—nothing whatever to be done, and that his teeth will be in perfect order for the next six months."

I think I cried a little. I know mamma did; for you see she had been keeping her

courage up, too. And she had done it so well that I never knew her heart was jumping and stopping, just like mine, until she told me.

But we were so happy,—oh, so happy! And we went away together, after we had shaken hands with that nice Dr. Wilson; and I think he was almost as glad as we were. And we had ice cream and strawberries, and we took some home to Polly in a paper box. And the funny thing is that I have never had any trouble with my heart since then.—Laura E. Richards.

Henry Ward Beecher's Advice to His Son.

From a letter once written to his son by the famous preacher we take the following wise hints, which are good for all young men—and young women, too:

You must not go into debt. Avoid debt as you would the devil. Make it a fundamental rule: No debt—cash or nothing.

Make few promises. Religiously observe the smallest promise. A man who means to keep his promise cannot afford to make many.

Be scrupulously careful in all statements. Accuracy and perfect frankness, no guesswork. Either nothing or accurate truth.

When working for others sink yourself out of sight; seek their interest. Make yourself necessary to those who employ you by industry, fidelity and scrupulous integrity. Selfishness is fatal.

Hold yourself responsible for a higher standard than anybody else expects of you. Demand of yourself more than anybody expects of you. Keep your own standard high. Never excuse yourself to yourself. Never pity yourself. Be a hard master to yourself, but lenient to everybody else.

Concentrate your force on your own business; do not turn off. Be constant, steadfast, persevering.

The art of making one's fortune is to spend nothing. In this country any intelligent and industrious young man may become rich if he stops all leaks and is not in a hurry. Do not make haste; be patient.

Do not speculate or gamble. Steady, patient industry is both the surest and the safest way. Greediness and haste are two devils that destroy thousands every year.

Lastly, do not forget your father's and your mother's God. Read often the proverbs, the precepts and duties enjoined in the New Testament.

Some Wonderful Things.

"Martin," said a wise grammar school boy to his little brother of six, "come here, and tell me what you have inside of you."

"Nothing," said Martin.

"Yes, you have. Listen! You've got a whole telegraph stowed away in your body, with wires running down to your very toes and out to your finger-tips."

"I haven't," said Martin, looking at his feet and hands.

"You have, though; and that isn't all. There's a big force pump in the middle of you, pumping, pumping seventy times a minute all day long, like the great engine I showed you the other day at the locomotive works."

"There is no such thing"—

"But there is, though; and besides all these things, a tree is growing in you, with over two hundred different branches, tied together with ever so many bands and tough strings."

"That isn't so at all," persisted the little boy, about ready to cry. "I can feel myself all over, and there's no tree, or engine, or anything else, except flesh and blood."

"Oh! that isn't flesh and blood, that's

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Dalmoy Blend—The choicest tea the world produces. 75c per pound, postage paid.

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Prices:	16-oz.	15-oz.
San Francisco prices for 16-oz. full weight packages	50c 60c 75c \$1.00	Parcel Post prices for 15 oz. packages 47c 54c 70c 94c

Flavors: Basket-bred Japan; Ceylon; Formosa Oolong; English Breakfast (Black); Family Mixed (black and green).

The cost of the sixteenth ounce is subtracted from the San Francisco prices to allow for the weight of the wrapping. The postage is at our expense.

Save money. Buy direct from the importer. Get quality.

For fifty years we have been importing superior teas for our fine trade. Goldberg, Bowen & Co.'s name on the package as the importer is a guaranty of purity as well as quality. To create a nation-wide distribution we offer fine teas by parcel post, prepaid. New crop, selected teas, parcel post packages, 15 ounces of tea, postage paid. (Select by flavor.)

GOLDBERG, BOWEN & CO., San Francisco

Ask for Catalogue

most of it water. This is what you are made of,—a few gallons of water, a little lime, phosphorus, salt, and some other things thrown in," said his brother.—World's White Ribbon.

Cooking Recipes.

Potato Souffle.—Wash and bake three large potatoes. Cut in halves lengthwise, and without breaking the skin scoop out the potatoes into a hot bowl. Mash and add one even tablespoonful of butter, one of hot milk, and salt and pepper to taste. Beat the whites of two eggs stiff, and mix with the potato. Fill the skins with the mixture, heaping it lightly on the top. Brown slightly in the oven and serve.

Spinach With Egg Garnish.—Pick over one peck of spinach, wash until clean, cook in boiling water until tender, twenty to thirty minutes. Turn into a colander, let cold water run through it, drain very dry and chop it fine. Fifteen minutes before serving put into a shallow stew pan a large tablespoonful butter, a teaspoonful of salt, a saltspoonful of pepper, and a saltspoonful of nutmeg. When melted add the spinach and place it where

it will become very hot, but not burn. When ready to serve turn in a round vegetable dish and garnish with hard-boiled eggs cut lengthwise into four or six pieces, and laid on the edge of the spinach pointing toward the center.

Banana Salad.—Put into a small bowl or saucepan the yolk of one egg, one saltspoonful salt, and half a teaspoonful powdered sugar. Stir in oil slowly till one cup has been used, adding two table-spoonfuls lemon juice as needed to thin it. Color a teaspoonful of the dressing with a tiny bit of prepared green color paste and then stir this into the whole, using only just enough to give a pale tint of green. Just before serving add two table-spoonfuls thick whipped cream. Cut four bananas twice lengthwise and then each piece into quarters. Put two small lettuce leaves together, lay several pieces of banana on the lettuce and cover with the dressing. Arrange these portions on a large platter and garnish with the tiny center leaves.

I look upon the simple and childish virtues of veracity and honesty as the root of all that is sublime in character. —Emerson.

They were newsboys and had strayed into the Art Museum. At the moment they were standing before the Winged Victory of Samothrace. "Say, Bill, what's that?" asked one of them in an awed whisper. "Aw, I dunno," replied the other. "Some saint wid his block knocked off."

McMasters was walking with a beautiful girl in a wild New England wood. "What is your favorite flower, Mr. McMasters?" the girl asked softly. McMasters thought a moment, then cleared his throat and answered: "Well, I believe I like the whole wheat best."

Dr Leonard Bacon had a friend, who, on seeing him hold a paper at arm's length to get at an article, said, "Why, Dr. Bacon, have your eyes come to fail you like that?" My eyes," answered the witty doctor, with a sharp twinkle—"my eyes are al'right. The trouble is my arms are too short!"

A Metropolitan matron once ventured to ask James Lane Allen, "Are you a bachelor from choice?" "Yes," came the answer promptly. "But isn't that—er—rather ungracious and ungallant?" protested she. The novelist smiled. "You must ask the ladies," he suggested gently; "it was their choice, not mine."

Knicker—A judge has ruled that a woman shouldn't spend more on clothes than on rent.

Mrs. Knicker—Well, then, we shall have to pay a bigger rent.—New York Sun.

FIGHTS WITH COGARS.

A lucky shot is all that saved James Dittlon, of Wells, Nev., from being killed by a vicious mountain lion which he found devouring a sheep a week ago. The shepherd secured a rifle and shot the animal, but only wounded it in the thigh. The animal came at him. he waited until it was almost on him before he fired. The bullet tore away the beast's lower jaw, and Dillon, seeing that its progress was not stopped

and having but one more load in his gun, started to run. He ran some distance and then turned to see the lion writhing on the ground. Returning, Dillon finished the job with his last shot.

Near Occidental, Sonoma county, a lion was killed last week on Mr. Hendren's ranch, in Coleman valley, and had no doubt been after some of his cattle, when his dogs took the trail treeing the animal, which was later brought down by the careful aim of young William's 12-gauge shotgun.

This animal has been much sought after for the past two years, and has caused considerable damage in the neighborhood. Many deer have been killed by it and not far from where Mr. Hendren and Mr. Hook secured the panther, they found the partly consumed carcass of a forked horn.

STATEMENT TO POSTAL DEPARTMENT.

In accordance with the Act of Congress of August 24, 1912, we publish the following copy of a report made to the Third Assistant Postmaster General and to the Postmaster at San Francisco:

Statement of the ownership and management of the PACIFIC RURAL PRESS, published weekly at San Francisco, required by the Act of August 24, 1912.

Editor—E. J. Wickson, Berkeley, Cal.
Business Manager—Frank Honeywell, Berkeley, Cal.

Publisher—Pacific Rural Press, San Francisco.

Owners: (If a corporation, give names and addresses of stockholders holding 1 per cent or more of total amount of stock.)—Frank Honeywell, Berkeley, Cal.

Known bondholders, mortgagees, and other security holders, holding 1 per cent or more of total amount of bonds, mortgages, or other securities—None.

FRANK HONEYWELL.
(Signature of owner.)

Sworn to and subscribed before me this 1st day of April, 1913.

(Seal.) C. B. SESSIONS,
Notary Public.



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Offices and Factories: STOCKTON, CALIF.

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For Every Need

Ask your dealer for a color card. He sells Old Mission Floor Paint. If he can't supply you, write us, mentioning his name, and we'll see that you are supplied promptly.



THE MARKETS.

San Francisco, April 9, 1913.

(Unless otherwise noted, quotations represent prices paid to the growers.)

Cereals.

WHEAT.

Dealers here have been looking for an advance of late, but with a drop in the Eastern market, prices locally stand about as before. There is very little business, the larger buying for this market being done in the north.

California Club, ctt.,	157½	@1.60
Forty-fold	1.60	@1.65
Sonora	Nominal	
White Australian	Nominal	
Northern Club	1.57½	@1.60
Northern Bluestem	1.65	@1.70
Northern Red	1.57½	@1.72½

BARLEY.

Trading is very dull, with buyers and sellers apart in their views, and no change has developed in prices. The crop outlook is said to be very poor, but so far there has not been enough buying to bring any advance.

Brewing and Shipping...	Nominal	
Choice Feed, per ctt.	1.35	
Common Feed	Nominal	

OATS.

There is a little inquiry for white feed, but no movement of importance, and other lines remain dull, values standing as before.

Red Feed	1.65	@1.85
Seed	2.00	@2.10
Gray	Nominal	
White	1.55	@1.60

CORN.

Another advance is reported in the Eastern market, as a result of which local offerings have again been marked up. California corn is little more than nominal in the local market, though desirable stock is scarce and any offerings would probably bring an advance.

Cal. Yellow	1.45	
Eastern Yellow	1.50	@1.55
Eastern White	1.50	@1.60
Kaffir	1.50	@1.55
Egyptian	1.70	

RYE.

A little rye is offered within the range quoted, but there is little demand at present.

Rye, per ctt.	1.40	@1.45
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BEANS.

Very little change has developed in the bean market of late. A condition of extreme dullness prevails on most lines, though there is a fair demand for small whites, which are still firm as to value. Other lines receive hardly any attention from buyers, and the absence of the expected demand for the last few weeks leaves stocks in this market rather large. So far there has not been any great pressure to sell, but holders are beginning to feel some anxiety, and the market has a rather easier tone all around than for some time past.

Bayos, per ctt.	3.25	@3.45
Blackeyes	3.15	@3.25
Cranberry Beans	4.70	@5.00
Horse Beans	2.25	@2.35
Small Whites	4.65	@4.75
Large Whites	4.35	@4.40
Limas	5.40	@5.50
Pea	Nominal	
Pink	3.70	@3.90
Red Kidneys	4.00	@4.25
Mexican Red	4.00	@4.20

SEEDS.

Canary seed is firm at the recent advance, with very little on hand locally. Alfalfa is steady, but is not much in demand just now.

Alfalfa	15	@17 c
Broomcorn seed, per ton	27.00	@28.00
Brown Mustard, per lb.	3¼	c
Canary	6	@6½ c
Hemp		3c
Millet	2¾	@3 c
Timothy	Nominal	
Yellow Mustard	Nominal	

FLOUR.

There is nothing new in the market, values being quoted at the same level as for some time past, with a normal movement in the local trade.

Cal. Family Extras	5.60	@6.00
Bakers' Extras	4.60	5.20
Superfine	3.90	@4.10
Oregon and Washington	4.90	

Hay and Feedstuffs.

HAY.

Values in the local market remain very firm, as arrivals are still running very light, and are hardly sufficient for current consuming requirements. All arrivals have found ready sale, and some hay has been taken out of local warehouses, leaving very little on hand. Strictly choice wheat hay finds more demand than usual, very little being offered anywhere, and sales have been made as high as \$26. Alfalfa is also firm under a strong demand. The lower grades find a strong demand in the country, and some good-sized sales at high prices are reported at outside points. While some sections have benefited greatly by recent rains, reports from other districts have been very discouraging.

No. 1 Wheat, or Wheat and Oat	18.00	@21.50
do No. 2	15.00	@18.00
Lower grades	12.00	@14.50
Tame Oats	15.00	@20.00
Wild Oats	12.00	@16.50
Alfalfa	10.50	@14.00
Stock Hay	9.00	@11.00
Straw, per bale	35	@75c

FEEDSTUFFS.

Alfalfa meal is firmer, with a slight advance, and bran is quoted a little higher than last week. Other lines are in only moderate demand, but steady in value.

Alfalfa Meal, per ton	20.00	@21.00
Bran, per ton	24.00	@25.00
Oilcake Meal	34.00	@35.00
Cocoonut Cake or Meal	Nominal	
Cracked Corn	32.00	@33.00
Middlings	32.00	@33.00
Rolled Barley	28.00	@29.00
Rolled Oats	34.00	@35.00
Shorts	27.00	@28.50

Garden Truck.

VEGETABLES.

The onion market is dragging along as for some months past, Oregon stock being somewhat lower, though Australian onions are still held at stiff prices. Asparagus remains the principal feature in the market for green garden truck, with arrivals frequently running up to 5,000 boxes a day. Prices, however, are pretty well maintained, as there is a heavy demand for shipment, and canners are taking all the first-class stock they can get at \$1 to \$1.25 per box. Fancy graded stock for the local trade is held up to \$1.75, and occasionally sells as high as \$2. Rhubarb is now offered in larger quantities, and prices have dropped, green peas being lower for a similar reason. Cucumbers are a little lower, but tomatoes are very scarce. Lettuce is fairly firm, but celery is plentiful and easy at about the former prices. Artichokes and cabbage are coming in freely from the district south of the city, and are lower, while sprouts and cauliflower show a slight advance.

Onions: River, Yellow, ctt.	50	@60c
Oregon, per lb.	60	@65c
Garlic, per lb.	1½	@2c
Tomatoes, per crate		\$5.00
Cucumbers, per doz.	1.00	@1.25
Cabbage, per ctt.	30	@40c
Carrots, per sack		75c
Cauliflower, per doz.	65	@80c
Celery, crate	50c	@1.00
Rhubarb, box	75c	@1.50
Artichokes, doz.	20	@40c
Sprouts, lb.	7	@8c
Green Peppers, lb.	20	@30c
Lettuce, crate	1.00	@1.50
Green Peas, lb.	4	@6c
Asparagus, box	75c	@1.75

POTATOES.

All lines of old potatoes remain at the old prices, with liberal supplies and very little demand. New potatoes are lower, with increasing supplies, though the demand keeps up well. Sweet potatoes are higher.

River Whites, ctt.	30	@50c
Salinas, ctt.	75c	@1.10
Oregon, ctt.	50	@65c
Sweet Potatoes	2.50	@2.75
New Potatoes, lb.	4	@4½c

Dairy Produce.

POULTRY.

Small broilers are coming in a little more freely the last few days, and while quotations are unchanged, the feeling on this line is easier. Large and extra hens, however, are firmer if anything than before, arrivals from the East being very light. The market could still accommodate more local stock than is coming in. There is a little more demand for ducks

and geese, which are wanted for the Jewish holiday, and these should find a good sale next week.

Large Broilers, per lb.	30	@32 c
Small Broilers, per lb.	30	@35 c
Fryers, per lb.	25	@27 c
Hens, extra, per lb.	19	@20 c
Hens, large, per lb.	18	@19 c
Small Hens, per lb.	17	@18 c
Old Roosters, per lb.	10	@12 c
Young Roosters, per lb.	22	@25 c
Squabs, per doz.	3.00	@3.50
Geese, per pair	1.50	@2.00
Ducks, doz.	4.00	@6.00
Turkeys, dressed	22	@24 c

BUTTER.

The butter market has seen more fluctuation in the last week than for some time previous, the general tendency being downward, with larger receipts. The decline, however, brought out a demand for shipment, which temporarily cleaned up the market and caused an advance over Monday's figures. Prime firsts are at the moment quoted the same as extras, the latter being firm, while the former are barely steady.

	Thn.	Fri.	Sat.	Mon.	Tu.	Wed.
Prime	32½	30½	29	27½	28	28
Extras	32	30	28½	27	27	28

EGGS.

The only feature of the market is continued movement into storage, with comparatively large arrivals. All grades are firm at the same prices as last week.

	Thn.	Fri.	Sat.	Mon.	Tu.	Wed.
Extras	19	19	19	19	19	19
Firsts	18	18	18	18	18	18
Selected						
Pullets	17	17	17	17	17	17

CHEESE.

Most lines of California cheese are now coming in quite freely, and a selling movement on the Exchange has caused a decline of 1c in flats, and 2c in Y. A. S. Monterey cheese, however, is ½c higher. Fancy California Flats, per lb. 13 c. Firsts 12½c. New Young Americas, fancy 15 c. Monterey or Jack Cheese 15½c @ 16½c.

Deciduous Fruit.

Arrivals of strawberries have been larger this week than before, although shipments are not yet very regular from any one district. Aside from the southern stock, shipments have been received from Palo Alto and Watsonville. The southern stock, in 15-basket crates, sells at \$1.75 to \$2.25, and Palo Alto Longworths at \$1.50 to \$1.75, the Watsonville Malindas bringing about \$1.50 per drawer. Local demand for apples continues rather light, with liberal supplies. Northern Spitzenbergs are still coming in and find a fair demand at top prices, while Newtowns are in better condition than any other local offerings and are held at the old prices.

Strawberries: Crate	1.75	@2.25
Drawer	1.50	@1.75
Apples: Fancy Red, box	65c	@1.00
Bellefleur	65	@90c
Newtown Pippins, 3½ to 4-tier	75c	@1.35
Northern Spitzenberg	1.25	@1.75

Dried Fruits.

The market continues rather quiet, with only a limited demand for shipment. The most interesting features at present are the stronger tone of the raisin market following the success of the Associated Raisin Co. in getting control of the crop, and the rather uncertain crop outlook in various fruits. Apricots are especially firm, as some frost damage is reported, but old stock is entirely out of growers' hands, and it remains to be seen what will be done in the new crop. Prunes are steady, with little current demand, though there is some scattering inquiry for shipment. The New York Journal of Commerce says:

"The market for all varieties of raisins for Coast shipment continues to show an advancing tendency. While the general f. o. b. quotation on seeded is still 5¼c for fancy and 4¼c for choice in 16-ounce cartons, some packers wire that they will not book orders under 5¼c for the former and 4¼c for the latter. The New York market has not yet responded to the stronger Coast reports. Trade here is dull and prices on goods ex store remain at figures at least 1¼c under present Coast parity. There are said to be between 20 and 30 cars of seeded raisins in the New York market for which there appears to be no outlet, and until this stock is cleaned up there is no chance,

in the opinion of local operators, for an improvement in conditions here. The Growers' Association is now looked to to do for the distributing market what it has done for the growers' interests by buying up the surplus stock and holding it for a better market.

"The frost reports from California indicating a pronounced shortage in the 1913 apricot crop have had a strengthening influence upon spot New York prices without causing any quotable advance. The disposition to shade prices to effect immediate sales has disappeared. Buyers of spot goods are showing a little more interest, but still continue to govern their purchases by the actual requirements of the moment. Peaches on the spot remain quiet, with prices somewhat nominal and no business of consequence for forward shipment from the Coast to Eastern distributing centers is noted. The feeling among holders, however, is steady, and prices are maintained on the basis of previous quotations. California prunes are wanted only in a small way, and, as heretofore, the demand is confined almost wholly to the larger sizes. On these the market is firm and on small counts the feeling is steady, but prices on intermediate sizes are in buyers' favor."

Evap. Apples, per lb.	3	@4c
Apricots	Nominal	
Figs: White	Nominal	
Black	Nominal	
Calimyrna	Nominal	
Prunes: 4-size basis	2¼	@4 c
(Premium: 1c for 40s-50s; 2c for 30s-40s.)		
Peaches	3½	@4½c
Pears	4	@7 c
Raisins—		
Loose Muscatels in sweatbox	2½	@2¾c
Thompson's Seedless	5	c
Seedless Sultanias	3	@3½c

Citrus Fruits.

The Eastern auction markets are in much better condition for citrus fruits, as higher prices and better demand are in evidence. Some California growers will actually make money on account of the January frost, as those who were not caught will get higher prices than otherwise. Fruit is now going East at the rate of nearly 100 cars per day, and G. Harold Powell is quoted as estimating that fully \$15,000,000 will be saved of the crop this season, which was early valued at \$50,000,000.

At New York on Monday, April 7th, navel oranges sold for \$2.65 up to \$4.60 per box, the average being nearly \$4, at auction. At Boston the same day the auction prices were up fully to those above quoted. Cleveland and Pittsburg also averaged above \$3 per box. Lemons at the auctions are selling around \$4.50 and \$5 per box.

Orange growers had good news from Washington last week when it was announced that the Commerce Court had found for the growers in their contention that charges for refrigeration should be \$7.50 per car instead of \$30 when the car had been pre-cooled.

It is announced that the Mutual Orange Distributors will handle about 700 cars of oranges in the Tulare district the coming season.

In practically all districts citrus groves are recovering from the freeze so nicely that experts already predict a big crop for next year.

Navel oranges and grapefruit are quoted a little higher in the San Francisco market, but the demand in all lines is rather limited. Efforts are being made to advance prices here in sympathy with recent advances at shipping points, but so far the local trade has held off. Quite a lot of oranges bought at the advance are coming in, and there is some difficulty in moving them. Lemons and limes are a little lower.

Oranges, per box—		
Navels, good to fancy	2.50	@4.00
Frosted	75c	@1.25
Grapefruit, seedless	2.50	@5.00
Lemons: Fancy	6.50	@7.00
Choice	5.00	@6.00
Lemonettes	5.00	@5.50
Limes		7.00

Nuts, Honey, Hops, Etc.

NUTS.

There is nothing new in this line, all old stock being in the hands of the trade, while new crop prospects are still uncertain.

Almonds—		
Nonpareils		17¼c
IXL		16¼c
Ne Plus Ultra		15¼c
Drakes		12¼c

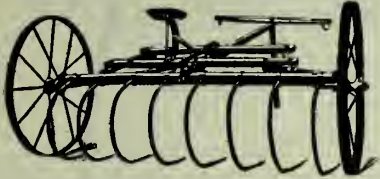
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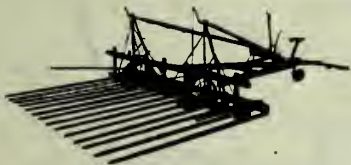
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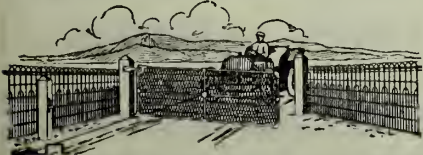
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Stump Pullers

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CO., 704 Bryant St., San Francisco.

Languedoc	11½c
Hardshells	8 c
Walnuts, 1912 crop—	
Softshell No. 1.....	16 @16½c
Hardshell No. 1.....	15 @15½c
No. 2	10½c
Budded	17 c

HONEY.

There is a good local demand for white and water white grades, which are scarce and firmly held, with little coming in. Amber and dark grades receive little attention, but are fairly steady, with moderate offerings.

Comb, white	15 @16 c
Amber	11 @12 c
Dark	9 @10 c
Extracted, white	8 @10 c
Amber	6½ @ 7 c
Off Grades	5 @ 6 c

BEESWAX.

This market is now pretty well cleaned up, and while there is no large local demand, the absence of heavy offerings keeps prices firm.

Light	32 @33 c
Dark	26 @28 c

HOPS.

There has been no great amount of trading of late, and supplies of old stock are fairly well cleaned up, while buyers are not yet taking much interest in the coming crop.

1912 crop	12½ @21c
-----------------	----------

Live Stock.

Dressed beef is quite firm at the recent advance, and large veal is also strong. Live hogs are slightly higher, while young lambs are coming in more freely, and prices have been shaded.

Steers: No. 1	7¼ @ 7½c
No. 2	6½ @ 7 c
Cows and Heifers: No. 1....	6¼ @ 6½c
No. 2	5½ @ 6 c
Bulls and Stags.....	2½ @ 4½c
Calves: Light	7½ @ 8 c
Medium	7 @ 7½c
Heavy	5½ @ 6 c
Hogs: Grain-fed, heavy.....	8¼ @ 8½c
150 to 250 lbs.....	8¾ @ 9 c
100 to 150 lbs.....	8½ @ 8¾c
Prime Wethers	6 @ 6¼c
Ewes	5 @ 5¼c
Lambs: Suckling	7 @ 7½c

DRESSED MEATS.

Steers	11½ @12 c
Heifers	11 @11½c
Veal, large	10 @11 c
Small	12 @13 c
Yearlings	12 @12½c
Mutton: Wethers	11½ @12 c
Ewes	10 @10½c
Suckling Lambs.....	15 @16 c
Dressed Hogs	12½ @13 c

WOOL.

Spring shearing is becoming more general, and some first-class long northern wool has been sold at the prices quoted. The market, however, is quiet, conditions being unsettled by the tariff outlook, and short wools receive no attention.

Spring clip:	
Southern mountain, free..	9 @12 c
Northern, year's staple...	16 @18 c

HIDES.

Owing to lack of demand for short wool, sheepskins are neglected and rather weak as to value, but hides are steady, with a fair demand at the former prices.

Heavy Steers, over 56 lbs.	14 c
Medium	13 c
Light Steers, under 48 lbs.	12 @13 c
Heavy Cows, over 50 lbs..	12 @13 c
Light Cows, 30 to 50 lbs..	13½c
Kip	14 @15½c
Veal	17 @18½c
Calf	17 @18½c

Dry—	
Dry Hides	24 @25 c
Dry Kip, 10 to 15.....	24 @25 c
Dry Veal, 5 to 10.....	29 c
Dry Calf, 7 down.....	29 c

Horse Hides—	
Salt: Large	\$2.25
Medium	1.75
Small	75c
Colts	25 @ 50c
Dry	75c @ 2.00

Sheep Skins—	
Long Wools	\$ 0.85 @ 1.25
Medium Wool, 6 to 9 mos..	60 @ 90c
Short Wool, 3 to 6 mos...	40 @ 60c
Lambs	35 @ 70c

HORSES.

The last sale produced rather more satisfactory results than the auctions of several weeks previous, the prices being well up to quotations. The principal offerings were of light draft types, and rather above the regular run of recent shipments

in conformation and breeding. Bidding on the part of local draymen was active, though the prices were hardly as good as shippers expected. It is apparent, however, that local buyers are looking out for desirable draft stock, and new arrivals of this type are expected to find ready sale at fair prices.

Heavy drafters, 1700 lbs. and over	\$300 @350
Light Drafters, 1500 to 1650...	250 @285
Chunks, 1350 to 1500 lbs.....	200 @250
Wagon Horses, 1250 to 1350...	180 @225
Delivery Horses, 1050 to 1250..	125 @150
Desirable Farm Mares.....	100 @125

MULES.

1200 lbs.	\$200 @250
1100 lbs.	150 @200
1000 lbs.	125 @175
900 lbs.	75 @125

PUBLISHER'S DEPARTMENT.

NEW BOOKS RECEIVED.

A book by Willard N. Clute has just been published by Ginn & Co. of Boston, the price of which is \$1 net. The book is entitled "Agronomy" and is devoted to practical gardening for high schools. This volume is unique in supplying the need of a book in agriculture for the high schools of towns and cities. All existing books are written with the needs of the farmer's boy and the country school in mind and are therefore not adapted to urban problems. This book shows the city child how to make the best of his lawn and garden and at the same time fits him to take up the more serious work of farming should his circumstances make this desirable.

"A Manual of Practical Farming" is the title of the book by John McLennan, Ph.M., and just reprinted by The Macmillan Company, of 66 Fifth Avenue, New York. The price of the book is 50 cents net and seems to us to be very low for such a valuable work, containing nearly 300 pages and bound in cloth. The writer of the book does not claim originality for it, but says that he has put into plain, practical language a great deal of information regarding the soil, water, fertilizing, crops, stock, feeding, milk and butter production, care of the home, orchard, etc. Many of our readers would be benefited in reading the book and keeping it for reference.

The writer had the pleasure of meeting for the first time, last week, Mr. R. F. Wilson of Stockton, who is well known by the older readers of the PACIFIC RURAL PRESS. For over 25 years Mr. Wilson has been an advertiser in this paper, his idea being to build up a business with farmers direct instead of through agents. That he has been successful is evidenced by his large plant and his further statement that he thinks of retiring from business soon, as he has made enough and thinks he is entitled to enjoy a play spell. Twenty-five or more years at one job is surely a fine record and Mr. Wilson deserves his success.

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Chemical and Bacteriological Analyses, Soils, Waters, Feeds, Dairy Products.

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of San Francisco,
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Capital Paid up - - \$6,000,000.00
Surplus and Undivided Profits \$5,000,000.00
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LAFAYETTE HOME SITES—

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In the heart of a country blessed by nature, now within easy commuting distance of the bay cities.

AN ACRE AND INDEPENDENCE—

O
May seem impossible, but the experience of others makes it a proven fact.

THE HIGH COST OF LIVING—

O
Can only be overcome by becoming a producer; cut out the middleman; cut your expenses while living better.

KEEP YOUR POSITION—

O
In the city, but give your family the benefits of wholesome country life and at the same time retain all the advantages of city life.

OR DEVOTE YOUR TIME

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entirely to ranching; a wonderful market is at your door and the Parcel post has added new fields of profit.

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and up to \$800; think of 10 city lots that is the size of the smallest home site; some are larger than 20 city lots.

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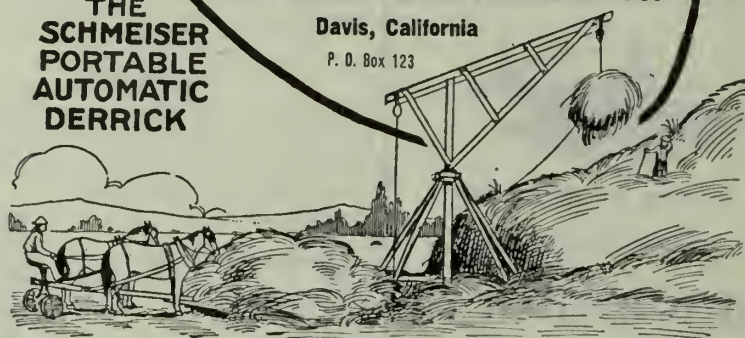
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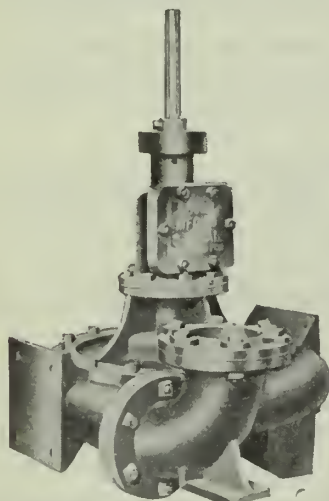
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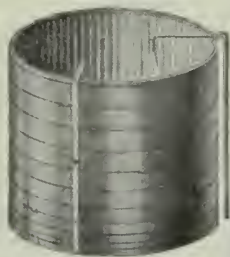


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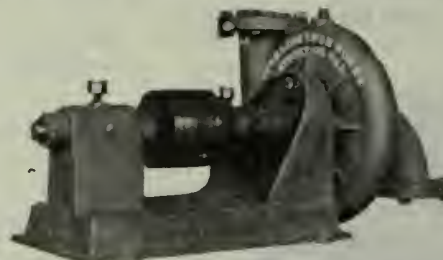


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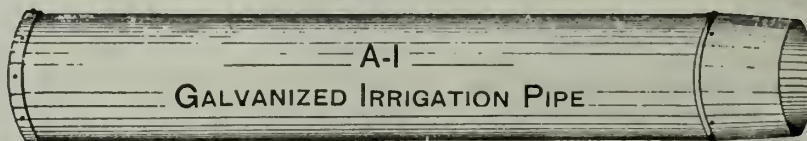
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THE PACIFIC RURAL PRESS

Vol. LXXXV. No. 16.

SAN FRANCISCO, SATURDAY, APRIL 19, 1913.

Forty-Third Year.

NAPA EGG-LAYING CONTEST.

[Written for PACIFIC RURAL PRESS by WALLACE RUTHERFORD,
Secretary Napa County Poultry Association.]

The Egg-Laying Contest now being conducted by the Napa County Poultry Association, at Napa, is a big success and is running along without a hitch.

Sixty-six pens have been entered, as follows: S. C. White Leghorns, 24 pens; Black Minorcas, 7 pens; Barred Rocks, 5 pens; White Rocks, 4 pens; Buff Orpingtons, 4 pens; White Minorcas, 4 pens; Buff Leghorns, White Wyandottes, White Orpingtons, Anconas, and Blue Andalusians, each 2 pens; and one pen each of Houdans, Buff Wyandottes, Golden Wyandottes, Columbian Wyandottes, S. C. Rhode Island Reds, S. C. Brown Leghorns, Lakenvelders, and R. C. Rhode Islands Reds.

All the entries are from California except two, one from Nebraska and one from Missouri. All of the birds entered are pure-breeds, and about two-thirds of them would make a fine showing in a poultry show where points count.

Instead of penning the birds in colony houses, as at first planned, a large building 50 feet wide and 120 feet deep has been erected to house the birds. When the suggestion was first made to place all the pens under one roof and keep them there continuously during the contest, it did not meet with the approval of many of the members, but when the plan was fully explained, and it was shown to what advantage the building could be ventilated, and the cold in winter and heat in summer regulated, keeping the temperature under almost perfect control all the time, every member of the association heartily approved the plan. We believe every practical poultryman who could look over our building would immediately conclude, as we have, that birds properly fed and cared for would produce eggs to their utmost capacity. The birds will never be affected by the rains and frosts of the wintry months, nor the hot sun or winds of the summer months, but through a system of windows and skylights the birds will be provided with abundance of sunshine and fresh air.

The building has large skylights in the roof, facing to the south, and a long row of windows along the south side. There are windows also to the east and west. The building is divided into 68 pens, two alleys, a feed room, and a room for the man in charge. Each pen is 6 by 10 feet, with a dropping board, roost, two nests and an egg tray. The whole of the floor of the pen is covered with scratching material. The feed boxes and water cans are all on the outside of the pen, reached by the birds through lattice work. Over each roost there is a canvas covering extending out from the walls 30 inches. That canvas covering

also extends down to the dropping board on either side. Between each pen there is one-half inch redwood to a height of four feet, and then two feet of wire. The top of the pen is covered with wire netting. The aisles are five feet wide.

Each pen is equipped with an egg tray in which is kept the eggs laid by the hens in the pen for one week, the number laid each day being kept on a separate shelf. In front of the pen is a card indicating the name of the breed, the number of the pen, price of eggs for hatching purposes, and the name and address of the owner. There is also another card upon which the daily egg record of the pen is kept so that any visitor may, without asking questions, ascertain the egg record of each pen. A duplicate of the cards posted on the pens is kept in the office so that changes cannot be made.

The pens are under the immediate supervision of a man who has had

many years of experience in the care of both utility and fancy poultry, and who has made a success of his own poultry plant. He, however, is under the direct control of a rations committee, consisting of four practical poultrymen and one scientific poultryman, who have made a success of their own poultry plants, and which committee has direct control of the rations to be fed during the contest.

Three classes of prizes have been offered: Five for the greatest number of eggs laid, ranging from \$25 to \$5; three for the greatest weight per dozen eggs, ranging from \$15 to \$5; and three for the

best individual records, ranging from \$15 to \$5.

The White Leghorn pen of Blom & Son of Napa has been the leading pen in the contest from the beginning. The birds in that pen are all matured pullets of exceptional quality. Mr. Blom is an "old timer" in the business; he was one of the exhibitors at the first Petaluma poultry show, held over twenty years ago.

George D. Lubben, whose Barred Rocks took second place at the end of the sixth week, is an old time exhibitor, and has a pen of Rocks in the contest that would win in any poultry show.

A pen of White Leghorns from L. C. Huntington, of Omaha, Nebraska, commenced laying five days after they arrived, and have laid better than an average of four eggs per day ever since and do not show any signs of weakening.

P. F. Clardy, of Ethel, Missouri, sent out a pen of beautiful Buff Orpingtons that have been making quite a showing during the past three weeks, laying 33 eggs in the sixth week.

Most of the larger breeds that laid so heavily in the early part of the contest commenced to get very broody after four weeks of the strenuous life, but without doubt will make quite a showing in the fall when



Pens and Special Building for the Napa Laying Contest.

(Continued on Page 481.)

Pacific Rural Press

Issued Every Week at 420 Market Street, San Francisco.

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D. J. WHITNEY - - - - - Associate Editor

CALIFORNIA WEATHER RECORD.

The following rainfall and temperature record is furnished the PACIFIC RURAL PRESS by the United States Department of Agriculture Weather Bureau, at San Francisco, for the week ending at 5 p.m., Apr. 15, 1913.

Stations.	Rainfall Data.			Temperature Data.	
	Past Week.	Seasonal to Date.	Normal to Date.	Maximum.	Minimum.
Eureka	1.40	30.21	40.82	60	44
Red Bluff .....	.58	16.90	22.40	78	46
Sacramento .....	.04	7.38	18.04	84	46
San Francisco .....	.01	11.31	20.59	76	46
San Jose .....	.01	5.41	15.48	88	42
Fresno .....	.96	5.84	8.48	88	42
Independence .....	.00	3.83	8.40	80	26
San Luis Obispo .....	.02	7.22	18.51	82	34
Los Angeles .....	.02	12.46	14.64	88	44
San Diego .....	.01	5.78	9.23	80	46

The Week.

Governor Johnson has decided that the best thing this writer can do for California during the next three months is to get out of it. We are then packing up this week for an involuntary exile. If one cannot live in California, the next best thing to do is to live for California, and we patiently make this patriotic sacrifice. For we have a firm conviction that, from the point of view of the joy and satisfaction of living, time spent away from California is largely wasted. One may put a dent in the golden bowl to visit the outside world, or he may slip the silver cord to catch the bliss of paradise, but, frankly, we have a little distrust of both places. California is good enough for us. But as we recall the sacrifices which American patriots made at Valley Forge and Yorktown and with the hoofbeats of Paul Revere pounding in our ears, we dare not refuse even the greatest sacrifice which a Californian can make for his State—to depart from it. This performance of duty Governor Johnson has exacted from two Californians: Colonel Harris Weinstock and this writer, and both have promised obedience. A little later, when we get beyond rifle-shot from the State border, we shall indulge in a few personal remarks about both these persons, but for present purposes their personalities are immaterial: the Governor of the State must stand for them for the time being.

What It Is All About.

Of course, regular readers of this journal do not need general information about the organized effort which is now being made throughout the country to increase American knowledge and appreciation of the necessity of effective co-operation among the farmers of this country in order, first, that they may secure needed capital for increased food production at lower interest rates and for longer terms than have hitherto been available; and, second, that they may get a fairer share of the current market values for the products into which they place their capital, labor and spirit of enterprise. Readers of the

RURAL PRESS have been thinking and reading about these things since the very foundation of this journal, and they have taken part in notable efforts to realize the principles which they have learned to recognize as sound and fundamental.

Recently also the recognition of the rights which great organizations of farmers, like the National Grange, began to contend for more than forty years ago, have come to be widely recognized as underlying true public policy, and many of them have entered into regular governmental operation: such as the regulation of great corporations for transportation, commerce and other public purposes. The National Grange was the pioneer in a line of effort which has called into being other powerful organizations like the Farmers' Educational and Co-operative Union, and in our own State, especially, a notable list of fruit-growers' selling organizations—not all of them reaching permanent success and endurance, but not one of them failing to advance in some way its constituency and the whole body of California producers.

Recently also the recognition of the rights and privileges for which farmers have been contending for decades has possessed all classes of people, and their efforts are now receiving emphatic endorsement by our leading statesmen, financiers and economists, and characterized on all sides as important undertakings for the public welfare. All officialdom and citizenship now accepts the movement for the exaltation and promotion of agriculture as the real thing which will enable the world to live. California has taken a leading place in this general appreciation. Our Governor Johnson, at the meeting of Governors held in Washington last December, made a telling address on the subject, as stated in our issue of December 14, and is now serving as a member of a Governors' committee to draft uniform rural credit legislation to be recommended to the States. He has been, in fact, an active worker in this line, emphasizing it in his message to the legislature which is now in session and manifesting his desire to work with California farmers and farmers' organizations for the attainment of the ends which are so clearly to be desired.

The Work of David Lubin.

In concentrating and making effective this general appreciation of the agricultural situation, no single event compares in significance with the establishment of the International Institute of Agriculture by the King of Italy at the suggestion of David Lubin of California. Our readers already know of Mr. Lubin's work for this establishment, and our columns have freely recited the sturdy and incisive economic philosophy by which Mr. Lubin has demonstrated the farmers' right to fair money and described how the proper use of it would give the farmer prosperity and the world peace and comfort. It strikes us that the International Institute of Agriculture is the greatest peace congress which has yet been conceived, and the real foundation upon which all kinds of peace prophets must come to rest their superstructures if they are to stand for the light of the world. Mr. Lubin, while still under the burdens of his career as a California merchant, had visions of the world-interest erected upon the farmers' prosperity, and discerned the world to be unsafe so long as it rested upon farmers' hardships. To test this idea he cut loose from commerce for its own sake and went out to see the world. He found striking instances here and there of financial soundness, and he probed the financiers and economists everywhere to determine why certain communities were self-reliant, capable and prosperous, and he found, in the

end, that the reason was the local discovery and practice of the principle of financial self-help, based upon mutual trust and exact knowledge and understanding—not only of the producing art of agriculture, but of the finance of agriculture both in production and trade in its products. And so when the King of Italy called the nations together to organize the International Institute of Agriculture, it naturally arose with two main pillars—science to make production wiser and more fruitful; and economies, to properly place the producer in finance and trade, to which he had formerly blindly ministered and allowed practically all the benefits to go to others.

The Special Undertaking.

We come now to align with the foregoing the particular undertaking, in which Col. Weinstock and this writer have been designated to participate, in the interest of California. This, too, has been mentioned from time to time in our columns during the past year, so that readers are more or less familiar with it; still its relations may be new to some.

There is in the Southern States a powerful organization, working to promote prosperity in that region of the country, known as the Southern Commercial Congress. It is, if we are not mistaken, the greatest, broadest, and most enduring organization of its kind in this country. It maintains permanent headquarters in Washington, holds frequent conventions in Southern cities, assumes the general burden of promoting industries in its section, and is energetic in advancement of science and education as the basis of greater industrial success. This institution appealed to Mr. Lubin as the delegate to the International Institute from the United States, for knowledge of ways in which the self-reliant communities of Europe had come to find themselves financially and escape the impositions of professional money-lenders, small and great. Mr. Lubin replied that he would make the journey from Rome to some Southern city and inform them by word of mouth what he had seen and learned in Europe, providing afterward the Congress would systematically organize an American inquiry, inviting all the United States to participate, which would enable a large number of Americans to actually see what European farming communities were doing to help themselves, to listen to the people as they described their experiences, and to study the economic principles involved in their experiences as they should be expounded by prominent European economists. The Southern Commercial Congress accepted Mr. Lubin's terms. He came to this country, delivered a number of illuminating addresses, planted the seed he desired to bring forth fruit, and the Congress has done its part by organizing what is to be officially known as "The American Commission for the Study of the Application of the Co-operative System to Agricultural Production, Distribution, and Finances in European Countries." We presume the designation was amplified so that untitled Americans might not be ashamed in visiting countries in which titles count for so much. However, there will be about a hundred persons constituting the Commission aforesaid, some accredited by the United States, some by the different States (of which about 30 have provided for representation) and others vouching for themselves as friends of the cause. They will sail forth from New York on April 26, instructed to make an examination of the methods employed by progressive agricultural communities in production and marketing and in the financing of both these operations. These specifications are given:

First—The parts played, respectively, in the

promotion of agriculture by the governments and by voluntary organizations of the agricultural classes.

Second—The application of the co-operative system to agricultural production, distribution, and finance.

Third—The effect of co-operative action upon social conditions in rural communities.

Fourth—The relation of the cost of living to the business organization of the food-producing classes.

Such questions as these arose in Mr. Lubin's mind when he received the awakening to which we alluded above. He thinks he found light by a study of what the industrial classes of Europe did for themselves and what has been done for them by governmental provision. He insists that the way to get wise is to make personal study where the things are actually taking place.

Are Not Glad We Are Going.

Now despite the fact that two Presidents of the United States have personally commended the undertaking and praised the manner of it; despite the fact that the Congress of the United States has provided part of the funds to carry it out and appointed representatives at large for the Nation; despite the fact that about thirty States have done the same; despite the fact that the leading state and national organizations of farmers have approved the plan and taken keen interest in it—there are some few people who are not glad that we are going.

First, there is the ultra-academic opposition. The president of one of the state universities of the Middle West, in responding to an invitation to join the Commission, said: "I am confident that I could not return to my State or my country anything like the value received for the time and money. One of our Agricultural Faculty spent all last year in Europe; another is there this year; and another will go there next year. These men are making a careful study of agricultural conditions, and the University pays their salaries while engaged in this work. These men all agree that a summer's journey would have but very little scientific or educational value." To this it may be replied that it is the conventional ultra-academic view which finds no value in anything which does not result in a treatise. It is justifiable, in a way, so long as educators hold that the treatise is the only thing to teach from. We have no warfare with treatises: we like them, admire them, and use them; but you might as well attempt to satisfy the present demand for information on this subject with a treatise as try to charm a vast audience, assembled for an open-air concert, by nailing a volume of classical music upon the sounding-board of the bandstand. The people want to hear the band play. They demand that people who have seen the things stand up in their sight and give them voice and gesture. They want some one to tell them how these people, who have so notably helped themselves, live and move and have their being. They want to know if these people are like our people in motives and ideals and how far their attainments seem desirable under our conditions and adaptable thereto. In short, they do not need more treatises so much as they need personal testimony of life and action, and this they are convinced that they can secure, to a degree at least, by sending a large representation to see and hear, and after their return to talk with them face to face about what they have seen and heard and what they think about the European work to solve a world problem. If the academic person does not recognize and appreciate this demand and give it the proper place in his educational system, it will be so much the worse for academicism.

But there are a few other people who are not glad that we are going. These are they who can see nothing in the enterprise but a junket. One such person has written: "The journey would be a very pleasant summer excursion. It will be a splendid advertising medium and will give a lot of men a pleasant outing. I could not consent myself to do such a thing at public expense."

Of course a person with such a conception of it could not conscientiously go, and it is fortunate, too; for, from such a point of view, nothing worth while could be done. But the idea is absolutely wrong. It will be the hardest study period these people have undertaken, and from looking over the list of delegates we know that many of them know what hard study is. They are to be alert students of demonstrations, lectures, elucidations, interpretations. They are to do for three months what an ordinary tourist could not do for a month to save his life. The program is laid down by advanced European students and teachers, and if European educators do not know how to make students work, the art thereof is still undiscovered. No; it will be as far from a junket as can be imagined. And there is no compensation connected with it except the consciousness of well doing. All the delegates get is board and seats in the band-wagon.

But we cannot write more. We must pack our grip and polish our crown—for we do not propose to go among the crowned heads of Europe with a bare poll; we shall wear the crown of sovereign American citizenship.

Queries and Replies.

Querists must submit full names and addresses.

Seedling Fruits.

To the Editor: I have been growing seedlings from the pits of some extra fine peaches and plums with a view to planting them. A man near San Jose advised me that I would get good results. Since then I have met others who say that the fruit trees that spring from planted seeds yield only poor fruit. Will your department inform me just what I may expect?—W. H., San Francisco.

It is the tendency of nearly all improved fruit to revert to wild types, more or less, when grown from the seed. The chances are, then, that nine-tenths or more of the seedlings which you grow for fruiting might be worthless. A few might be as good as the fruit from which you took the pits; possibly one might be better. For these reasons the growing of fruit trees from pits and seeds is only used for the purpose of getting a root from which a chosen variety may be gotten by budding and grafting.

What the Hired Man Thinks About It.

To the Editor: I notice a letter in your issue of April 12, your answer to a question: "What can a man do?" relating to hiring a man to care for orange property. A great deal depends not only upon the man hired, but upon the man hiring. I have the legs, arms, and head you speak of, and 10 years experience, before which I had a good education. I have been looking for a long time for the man who wants me. Where is he? Put him on my trail, and if he is willing to come through with the wages, I will show him what a man can do.

I have got to have a man who can trust me, not one who will watch from behind a tree to see if I am doing a day's work. He will find that at the end of the year he will have a good margin over the 365 days on his side. I am not a five-minute man, and I cannot work for a five-minute boss. I want trust, responsibility, friendship and wages. Responsibility and wages are the most important. We can, if need be, prove out the other two later.—Hired Man, Porterville.

We take it this is not a bid for a place. If that

was all of it, it would have to go to our advertising columns. We can assure the reader that it was written by a hired man and we present it as representing the hired man's point of view. That view it is important for every employer to know and consider. We have no sympathy with exaltation of dependents simply because they are dependent. That seems to be largely a political function. But we do have the fullest sympathy with a man who carries a burden for another and does it well, and we believe the way for an employer to win prosperity is to employ and pay well men who are expert, devoted, capable and willing to do what the job requires rather than what the clock or the calendar indicates. One influence toward this end will be a fuller understanding of the hired man by the employer, and vice versa.

Cultivating Olives.

To the Editor: Will you kindly advise me, through your valuable paper, how deep an olive orchard should be plowed. I was told that by plowing deep I would injure my trees, in cutting up small rootlets and fibres which the olive extends through the surface soil. Is this so or not?—P. T., Folsom.

Plowing olives is like plowing other trees, the purpose being to get a workable soil deep enough to stand five or six inches of summer cultivation, usually. If you have old trees which have never been deeply plowed, you would destroy a lot of roots by deep plowing, and you should not start in and rip up all the land at once. You can gradually deepen the plowing, sacrificing fewer roots at a time, without injuring the trees if they are otherwise well circumstanced. Small rootlets and fibres in the surface soil do not count; they are quickly replaced, and if you do not destroy them, the whole surface soil, if moist enough, will be filled with a network of roots which will subsequently make decent working of the soil impossible.

Fertilizing Corn.

To the Editor: Will you kindly give us your advice in the following matter. We are going to plant about twenty acres to corn on a sidehill which we have rented. We intend to put some fertilizer on, but want to give it to the corn only. Would it be a good plan, after we have marked out our rows, to scatter some fertilizer in these marks and put the corn right on top of it? If this injures the corn, in what other way could we apply the fertilizer, which is a special "corn fertilizer"?—H. H., Watsonville.

We take it you ask about the use of a readily soluble commercial fertilizer. If so, you can do as you propose, being careful not to use too much. The operation of planting will distribute the fertilizer through enough soil if the application is not too heavy. The effect will depend something upon what showers you get after planting.

Starting Palms.

To the Editor: Will you tell me just what care the fan palm needs and if it requires much water? My palms are quite small, but they do not seem to grow; they seem to be drying up.—A Subscriber, Arboga.

The growth of palms is proportional to the amount of soil moisture available, providing it is not in excess and not too alkaline. Some palms are quite drouth-resisting, but usually like better conditions and manifest it by their looks. It is a mistake to think of a palm as a desert plant and try to make a desert for it. A young palm, especially, needs regular and ample water supply until it gets well established. Your plants may be drying up, or they may have had too much frost or too much alkali. If they are not too far gone they will come out later if you give them regular moisture and cultivation.

Orchard Hints for Beginners.

Rooting Olive Cuttings.

To the Editor: I am working for a company that is propagating olives with what they call a hot-water gravity circulating plant. The company was new at the business. One man said that he had propagated olives for 21 years, and he claims that they should not have any air; that the air would make them lose their leaves. He also said we ought to leave the dead leaves in the hot-bed. Another man who is running a six million propagating plant said: "give them air and pick out the dead leaves." One man claims the heat should not get below 72° nor higher than 80° in the bed. The other man said that it didn't make any difference if it went below 72° or above 80°. Now, if it is 84° outside of the bed you cannot keep it down to 80° in the bed, can you? Some say that the sand is too fine and that it has alkali in it, and that is the reason that a large percentage is dead. The ones that are dead were put in December 16, and those put in December 12, next to them, are doing finely. What is the reason?

I have the Sixth Edition of California Fruits; it tells about olive propagation, but it does not say whether the sand should be coarse or fine, nor anything about the temperature. Some claim that the cuttings should be watered every day; some claim that every other day is right.—J. C. Riverside.

You have been up against the cock-sureties all right, and we cannot help you much in that line. We are afraid as death of a man with a prescription and who holds a formula to be more valuable than his reason. We cannot give you specific prescription of temperatures for the best growth of small olive cuttings because the temperature can safely go lower than 72° and higher than 80° without injury, but, of course, there is less liability of injury below 72° than above 80°, and a temperature above 80° is not necessary nor desirable. If the temperature has to rise above that degree, more air should be given. If your outside temperature is too high you must use shade and the plants will stand it. We do not believe that the admission of air is undesirable, nor is it desirable to allow the dead leaves to accumulate to develop growth of fungus and trouble of that sort.

Sand for propagation should be rather coarse than fine, and the coarser the sand the more frequent should the watering be, because of the greater disposition to dry out. Whether plants should be watered every day or at longer intervals depends entirely upon how rapid the drying out is. The sand must not be allowed to dry out. At the same time it is very easy to keep it too wet and to cause decay instead of promoting the rooting process. We cannot tell why some of your cuttings failed and others succeeded. The experience would indicate, however, that the cuttings which failed either had too little or too much moisture, unless it should be that salt or alkali was present in one lot of sand and not in the other. Cuttings will fail if sand has salt or alkali present. Concerning this matter of rooting cuttings, as in other horticultural operations, one must try to understand the conditions prevailing and not pay so much attention to definite prescriptions of temperatures, times of watering, etc., because all these things are themselves dependent upon the character of the material with which you are working.

Almonds in the Foothills.

To the Editor: We have a few IXL almond trees, also a few paper-shell almonds. They blossom out well but nearly all blight. Can you tell me the reason? Had we better graft on some other kind, and, if so, which would be most suitable.—A. H. B., Raymond.

We cannot surely tell you why your IXL almonds do not bear nuts after an abundant bloom. This particular variety is, however, somewhat given to that habit. It is a fine grower, but not usually a satisfactory bearing tree. The varieties which are most likely to bear are the Drake's Seedling and the Texas Prolific, which it would be practicable to graft into your trees. These

are smaller almonds, but very late bloomers, and therefore have a better chance of getting out of the frost. It, of course, would be interesting to know whether any almonds are successful bearers in your district, because some regions have late frosts so constantly that almond production is not profitable. Your effort should be to ascertain whether anyone has regular bearing almonds on a place like yours and take scions from those trees for grafting over your own.

Perhaps Too Close a Combination.

To the Editor: I own 20 acres of land six miles north of Sacramento. I want to plant there 12 acres to fruit trees and plant peas between the trees. Six acres I want to plant to alfalfa and raise hogs till the trees begin to bear. Do you think I could raise enough hogs there to make a living? Could hogs be raised without pasture, because I will have just enough land left for a hog yard? Could alfalfa be planted there during the summer months, and could peas be planted there twice a year?—Subscriber, Omaha.

Peas do not usually do well in the interior of California unless sown in the autumn and grown as a winter crop. On interior uplands the dry season comes on so quickly that spring sown peas are not usually successful. Hogs can be successfully grown on alfalfa and the forage can be cut and carried to them in a feed lot. Usually, however, the extra cost of such an operation leads people to plant a larger acreage and allow hogs to graze upon it. It is very difficult to get a start of alfalfa during the summer time. It

should be started in the autumn or in the early spring. You could not get two crops of peas a year in the situation which you describe. You would be doing pretty well to get one good crop. Before determining on your policy, it would be decidedly better for you to study more carefully the conditions of soil and climate under which you are to operate and observe the methods which older settlers follow and what results they consider satisfactory. It would be a good idea to grow peas or vetches between the trees during the rainy season, and in that way a certain amount of feed could be obtained. The roots and the refuse tops plowed into the soil would be of benefit to the trees.

Late Planting of Fruit Trees.

To the Editor: We cannot get ready to plant fruit trees until the middle of April. They planted even later than that last year. The winter is very severe up here at 4000 ft. elevation and it holds on very late. Do you think late planting will do?—T. R., Tehachapi.

You can plant trees up to the middle of April providing the local temperatures are such that they are kept dormant until that date. A deciduous tree cannot often successfully be planted after it has started into leaf. Trees planted as late as April, however, will need irrigation sooner (unless the soil remains naturally moist), because they do not have the opportunity to make roots early enough. The first thing a transplanted deciduous tree does is to start its root growth before the top becomes active, and this is, of course, desirable, because the tree thus prepares itself to supply the sap which the unfolding leaves require. When you transplant them is primarily a question of the dormancy of the tree.

Grafting and Budding Walnuts.

To the Editor: At the earnest solicitation of your representative, Mr. D. L. Schrader, I will state the results of my experience in budding and grafting old trees and young wood on old trees of California Black walnut, Mr. Schrader being so impressed with the results of my work, that he thought I would be doing a good turn to the other fellow if the other fellow knew how I did it.

Well, three years ago I started on a lot of old trees that formerly lined a roadway, but which are now incorporated in a grove of 2400 young trees, Franquette. The first season I used the old method of splitting the tree down through the heart, crossways, putting in four grafts or scions; I also put in some side grafts. In regard to the splitting for the cleft graft, I find the tree does not split or cut true, but tears away, which necessitates a lot of paring or trimming to get the scions to fit and touch as they should do, and it takes a lot more wax to fill the tree up again. Consequently, you wait ten weeks to find out that your scion did not fit just right. You probably get one or two, or maybe three, scions out of the four you put in. If you get one or two scions to grow, you have a lot of dry wood and rotten bark for your one or two scions to work on and cover over, with an even chance that the whole stem is dying out, unless it is carefully watched and the cavity kept filled in with wax.

Another thing that can be expected is that as the scion union develops, it is continually tearing or splitting the stem, causing an air pocket to form, which eventually will develop dry rot, and you lose your nice young tree. While working on these trees, I was studying this out, and came to the conclusion that if a scion would unite and grow by splitting through the heart of the tree, it would unite and grow equally as well or better between the heart and the outside near the bark, figuring it out that if the heart of the tree was left intact that the tree would be benefited. To test this theory, I last season split my trees on the side instead of through the center, and found that I was correct, for the reason that those scions that have caught have grown stronger, made a better union, and leave no dead bark or dry wood on the tree, and no danger of its splitting the tree open, as it is so near the side it is like a bud.

[This is an interesting instance of developing, by one's own observation, facts which have been

previously placed upon record in the literature of a subject. The first statement of the desirability of avoiding center-splitting of the stock was made in the columns of the PACIFIC RURAL PRESS by the late Felix Gillet about 30 years ago. It was insisted upon in the first edition of California Fruits in 1889. It is known to all experienced walnut grafters and observed by them. Still Mr. Breen's detailed description of his own experience will be very valuable to others who are new beginners, and we therefore take pleasure in printing it.—EDITOR.]

Grafting in a Saw-Cut.—Working on my experience of the last two seasons, I have this season adapted a new method; instead of splitting the tree, I saw down, using an ordinary rip-saw, just far enough to insert the scion. After sawing, I insert a wedge; and I might mention that the wedge I use is the other end of the hatchet I was using for splitting. The hatchet is made out of a horse-shoer's rasp. The broad end is hammered out and sharpened to a chisel point. This is the wedge I use.

After inserting the wedge, I take my budding knife and shave off the rough bark left by the saw teeth, which leaves a perfectly smooth and even surface. I also use the budding knife to cut the scion, as the blade is thin and sharp, and you can draw it through and make a clean and even cut. The consequence is the cambium layer on the tree and the scion touch at four different points, and if the scion is cut just the right length, it will have contact at six different points, viz., the scion being put in at a slight angle, the four sides will be in contact, and by setting it to the top of the cut on the scion it will have the benefit of contact at two more places and will develop much faster. My object in using the saw is to get an even cut and have no check or split started on the main stem, and it also saves a great deal of wax, also time, both in placing the scion and wax. I have also adopted the policy of putting a good covering of good clay over the wax, with the object in view of keeping the wax cool in hot weather.

Side Grafting.—The side graft is made of the same wood used for the wedge or cleft graft. Cut only one side of the scion, then slit the bark the length of the scion to be inserted and push the scion in the same as putting in an ordinary

bud. Then tie and wax it in air-tight. Those that take may make a good union, but my poor results last season make me hesitate to recommend them very strongly, although I have gone pretty strong on them this season to give them a thorough test, using a new method on them in placing them so the contact is as near perfect as possible to get it. If they turn out as I expect them to, I will use them in preference to any other graft, as I find they can be put in places where a wedge graft or a bud cannot be put.

Budding the Walnut.—In budding the old trees, the new growth that comes after cutting back for grafting will make fine long canes by September, and the budding can be done any time during the month of September, then the bud on the growing trees is well set and the bark slips nice. In taking the bud of the soft-shell tree, I ring it above and below the bud, then the slit is on the opposite side of the stick from the bud, then peel off all of the bark from the stick, which gives a very large shield devoid of any wood, and with a large covering to come in contact with the cambium layer on the California Black. Buds put in in September and stubbed in January,

with the large shield, will grow as strong a cane the first season as an ordinary wedge graft, with a far greater percentage growing than the wedge graft and no dry rot or rotten bark to contend with, and no time wasted, saving waxing and wrapping with cloth, etc., and leaving a great deal in favor of budding. This season will decide me as to which bud I shall use in future; whether it will be the large shield bud put in in September and stubbed in January, or side graft put in same as a bud in March, although at the present time I am in favor of the shield bud, owing to the economy in the work and the fact that it leaves no injury to the tree, for if you lose the bud you still have the tree to work on the following season.

In conclusion I will say that in July, for the sake of experimenting, I took five buds of wood pruned from the young Franquette trees in January and inserted them in the new growth of the California Black walnut, and all five united and will grow this season, a fact which proves that the California Black can be budded in summer as well as in the fall.

Simol, Alameda county.

HENRY BREEN.

Work of the Ferndale Cow-Testing Association.

The great advantages of weighing and testing the milk of cows for the amount of butter-fat therein has been so often discussed in these columns that it is a very great pleasure to report the very excellent results of the third year of work of the Ferndale Cow Testing Association, Humboldt county, as given by the secretary and treasurer, Bernard Crowley, as follows:

To the Editor: The records for the year 1912, which is the fourth year of work for the Ferndale Cow Testing Association, have just been completed and the results as compiled and given below are highly satisfactory. A marked improvement is shown in the herds which have been under test for two or more consecutive years, except in one or two cases where some unavoidable circumstance has placed the herd at a disadvantage.

That the work has been considered beneficial from a business point of view is proven by the fact that out of a total of 1,339 cows tested for the year, all will continue the test with the exception of about sixty, which number represents two herds whose owners saw fit to discontinue the work for certain reasons, but not out of dissatisfaction with the results.

In addition to the above number, the association will test about 1,300 additional cows, employing two testers to carry on the work, having already completed one month's work for the coming year. Besides this, the Association was compelled to refuse between 300 and 400 additional cows as 1,300 each is all the testers can handle and do their work properly, and could not handle that number were it not for the fact that the dairies are conveniently located.

It is hoped that another year will see at least three testers in the field, and new advantages proven by the work.

In considering the figures given, it must be taken into consideration that while the total number of cows tested are classified in accordance with their production from February 15, 1912, to February 15, 1913, some of these cows freshened very late in the season, others for various reasons were not milking for the full period, and the list also includes heifers with first calf to the estimated average of about twelve per cent of the total number tested.

The highest producer this year gave a total of 11,935 lbs. of milk containing 677.26 lbs. fat. At the prices which prevailed at the various months during which this cow was under test she made a gross return for butter-fat and skim milk of over \$237.

The next two highest, and the only other two that produced over six hundred pounds of butter-fat for the year, produced 619 and 607.46 lbs. These two produced more milk each than did the highest fat producer, the first giving 12,493 lbs., and the second 12,474 lbs. It might be mentioned

that last year one of these two produced 12,644 lbs. milk, and 610.26 lbs fat, making a total of 1229.25 lbs. fat for the past two years. The 1339 cows tested are classified according to their butter-fat production as follows:

	Number of cows.
Over 600 lbs. butter-fat.....	3
Over 550 pounds butter-fat.....	1
Between 500 and 550 lbs. butter-fat.....	10
Between 450 and 500 lbs. butter-fat.....	26
Between 400 and 450 lbs. butter-fat.....	82
Between 350 and 400 lbs. butter-fat.....	150
Between 300 and 350 lbs. butter-fat.....	274
Between 250 and 300 lbs. butter-fat.....	268
Between 200 and 250 lbs. butter-fat.....	237
Under 200 lbs. butter-fat.....	288

The classification according to milk production is as follows:

	Number of cows.
Over 13,000 lbs. milk.....	1
Between 12,000 and 13,000 lbs. milk.....	3
Between 11,000 and 12,000 lbs. milk.....	18
Between 10,000 and 11,000 lbs. milk.....	51
Between 9,000 and 10,000 lbs. milk.....	91
Between 8,000 and 9,000 lbs. milk.....	179
Between 7,000 and 8,000 lbs. milk.....	250
Between 6,000 and 7,000 lbs. milk.....	224
Between 5,000 and 6,000 lbs. milk.....	185
Under 5,000 lbs. milk.....	337

The total amount of butter-fat produced by these 1,339 cows amounted to 362,743.45 lbs. which gives an average production per cow of 270.9 lbs. Included in these figures are some remarkable records when the age of the individual cows is taken into consideration, but the writer of this article has not all this information at hand, although enough is shown to prove that Humboldt county has a splendid foundation for the development of record breakers, reminding us of the statement of Prof. Leroy Anderson of the University of California, who after inspecting the dairy cattle of Eel River Valley, said that he believed the dairymen of Humboldt, by crossing with some of the best pure bloods could build up a splendid individual type of cattle that would be second to none in productiveness as well as strength and vigor.

All the cows whose records are given had the usual pasture of grass and clover in the fall by the feeding of green feed and root crops. In regard to these figures comparing with the returns from the creameries we might quote one of the members with a herd of eighty cows who said the Association's figures only differed \$43 from the returns from the creamery, and he did not take into consideration milk used for the family, etc.

THE WOOL BUSINESS.

[Written for the PACIFIC RURAL PRESS by W. M. CARRUTHERS.]

There is certainly nothing in the present condition of the wool trade to cause owners any uneasiness. The opening of the second series of auctions at London was at a further price advance

of 5 to 6%. Glasgow reports an excellent demand at higher prices. In the primary market of the United States, for the first time in several years, no great volume of wool is under contract in advance of shearing. The chief cause for this is that growers will not accept bids several cents a pound below last year's prices. Arizona sheep men are asking 20 to 21 cents for their wool, which prices Eastern dealers are refusing to pay.

There is evidence of shortage in the wool clip of Australia, South Africa and South America, heavy producers of the staple. New record prices have been established recently at sales in Tasmania, Australia, and good reports are coming from European markets. A lot of foreign wool held for a long time in Boston was recently shipped to England and sold at a profit. There is uncertainty as to the actions of Congress on the troublesome schedule "K." The framers of the tariff bill seem to want to put wool on the free list. What effect their action will have on the wool growers of the United States remains to be seen, yet the fears that preceded tariff legislation years ago are not in evidence among the flock masters.

BREED MORE LIVE STOCK.

[Written for the PACIFIC RURAL PRESS by W. M. CARRUTHERS.]

It seems there is now open to us a well defined system of farm practice from which we can expect a reasonable profit from our operations. To accomplish this we must use our wisdom to utilize the means which modern science is placing within our reach. This distinct system of farm practice is the production of meat, milk, and wool. It requires a much higher grade of ability to succeed in this work than it did years ago.

The live stock farmer must be equally competent as a crop producer with the grain farmer. He must have in addition ability to profit by the economies in the handling and feeding of live stock, which science is developing, as well as certain practical knowledge of animals and their requirements, which comes only from long experience and which can only be acquired by one who has a special aptitude and liking for the care of animals.

We are emerging from an era in which meat and wool were produced so cheaply on our Western ranges and with so low a grade of special qualifications on the part of the producer that the little farmer with his narrow margin of profits was crowded out of the market. The free range is rapidly becoming a thing of the past in this country. Irrigated fields of grain and alfalfa are waving over the semi-arid pastures of a few years ago. The steady rise in the value of animal products is now opening new opportunities to us for the handling of live stock, or rather is bringing back the old opportunities with increased advantages. For while it is quite true that meat is an extravagantly wasteful food, viewed solely from the economic standpoint, yet it is also true that the ruling people of the earth are the meat eaters, and the time is probably far in the future when in this country meat will be banished from the tables of any but the improvident, even though further advance in its cost should take place. The outlook, therefore, is that for a long time to come the farmer who possesses the ability to handle live stock successfully will find ample opportunity for the exercise of his talents and ample reward for the larger ability which such exercise involves.

The great scarcity of cattle abroad as well as in our own country is the crying need for more and better skilled men to join in the live stock industry. Mexico, in the throes of civil war, has had her cattle interests demoralized. Canada has no material surplus of cattle. Brazil will not be under headway for a dozen years yet as far as increasing the cattle supply is concerned. The cattle interests of the Argentine Republic have been crippled by three successive seasons of drouth, followed by foot and mouth diseases and shortness of breeding stock by reason of having sacrificed too many cows and heifers during the drouth period. So that country cannot possibly supply more than the European demand for beef during the next decade, at least.

There would seem to be no possibility of foreign competition whether the tariff on cattle and beef be removed or not, since there is a world-shortage of all kinds of live stock, especially cattle.

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HOW UNCLE SAM GOT IN ON OUR POTASH.

Mr. Edwards' claim that Uncle Sam does not own the public lands, which we cited in our issue of March 15, does not seem to rattle the old gentleman at all. He is going ahead with his conservation business just the same.

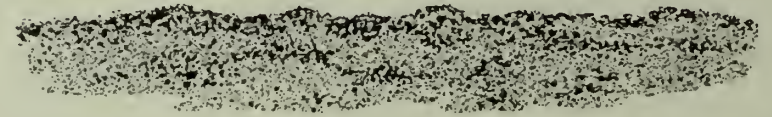
In connection with the search for potash in the West which is being made by the United States Geological Survey a great number of localities have been visited by the survey geologists, especially in the Great basin. Shallow desert lake beds, so-called dry lakes or playas, are extensively distributed throughout this region. Most of these playas contain salts to a greater or less extent, and nearly all these salts show an analysis of 1 to 4 per cent or more of potash. Few of these lake beds show evidence of having ever been submerged to a considerable depth, and the deposits that lie in the lowest parts of most of them are probably only alternating strata of clays and saline muds, with thin salt crusts produced by periodic flooding and drying up. Large and massive deposits of crystalline salts can hardly be expected, except as the result of the drying up of a very extensive and deep saline lake, or as representing the continuous accumulation of saline matter in a water body during a very long period of time. Record of the existence of such lakes in prehistoric times is to be found in certain parts of the Great Basin region. Contrary to the general assumption, however, the extensive lake basins are, in fact, relatively few. It is evident, therefore, that the search for the important salt bodies of this type has of necessity been narrowed to a relatively few localities.

The areas in Searles lake and the Panamint valley, Cal., of public land withdrawn from entry on account of their potash content are the lowest parts of two ancient lake basins, whose waters at their highest stage probably connected through a narrow strait. Both basins were filled by overflow from the drainage of Owens river, and in both the salts are believed to have accumulated by natural concentration of the normal drainage waters from that source. The salt body in Searles lake lies at the surface of the ground and was located in claims for the soda it contained before interest in potash had been seriously awakened. The mud flat that forms the bottom of the Panamint valley has recently been located in "potash" claims, but without any evidence that can be taken to indicate the existence there of a valuable saline mass. The salt that shows on the surface in the Panamint valley is relatively insignificant in amount, and tests for potash in the surface salts or ground waters of this valley do not run higher than the average of such salts in mud flats and dry lakes generally. The lands have, therefore, been withdrawn on evidence of a more general character, the theory being that the former larger lake of the Panamint valley, when it dried up, might have deposited a bed of salt as large as or larger than that now existing on the surface in Searles lake. The Panamint valley is relatively narrow, and the streams from the rugged mountain slopes that border it have spread their fans far into the center of the valley. Drilling, possibly to a considerable depth, will be needed to test the possibility of buried salt deposits in this valley, and if such deposits are found to be present, it is believed that they will be essentially like those of the Searles deposit.

Columbus marsh, Nevada, is the evaporation pan of a shallow lake. Analyses of clays obtained in this deposit have shown some exceptionally high percentages of potash. No important beds of clear crystal salts have yet been found in



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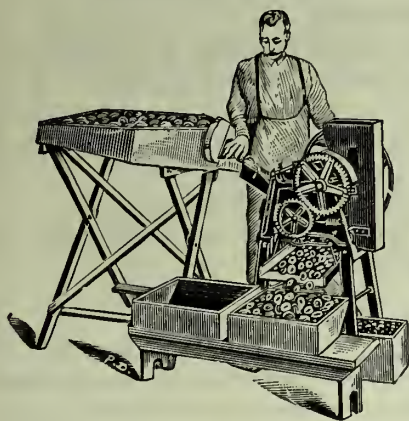
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the marsh, and the possible commercial value of such a deposit still remains a subject for further investigation. Pending such work these lands also have been withdrawn from entry.

CITRUS FRUITS AND FROSTS IN ARIZONA.

On the basis of his observation of frost effects on citrus fruits in Arizona. A. W. Merrill, the State Entomologist, submits, in the Progressive Farmer, these reflections:

The cold wave demonstrated what many believed, that no important citrus growing section in the United States can safely be considered absolutely proof against injurious freezes. The effects of the 1913 freeze in the Salt River Valley were not as destructive as the history of freezes in other citrus growing sections would indicate. This favorable outcome is undoubtedly due to the thoroughly dormant condition of the trees resulting from the continuous cold, although not injuriously frosty nights of December. We may expect in future occasional freezes of sufficient severity to kill to the ground improperly protected citrus trees between 1 and 4 years old, and of sufficient severity to destroy young wood on the older trees, also very rarely freezes which will cause serious losses of fruit. As for the citrus nurserymen in the Salt River Valley, it has been demonstrated that they cannot afford to insure against frost damage by using orchard heaters in the open nursery since there are more economical and certain means of protecting citrus nursery stock.

The frost dangers to citrus having been specified, we may consider the methods of obviating these dangers.

First: The experience gained will lead to the more general use of earth for the protection of the young tree trunks. With the information gained concerning tree protection there is no reason for the effects of freeze in future extending below the head of the orchard tree.

Second: An orchard heating outfit should be recognized as an essential part of the equipment of all citrus orchards in Arizona. This is not only a provision against loss of fruit on the trees from the effects of what may be termed mild or controllable freezes, but of "bearing" wood upon which the succeeding crop is dependant.

Third: More attention should be given to hastening the marketing of the citrus fruit crop and thus reducing to a minimum the dangers of injury. While the citrus growers were fortunate in the occurrence of the late freeze in January when the bulk of the crop had been picked, there is an unnecessary risk taken when, with the best marketing conditions of the season, the fruit is not picked as rapidly as it becomes salably colored.

Fourth: Citrus nursery stock for spring planting should be balled and housed for protection previous to the first of December, or small acreages may be entirely covered with muslin (or other suitable fabric) to permit economical heat protection.

Fifth: Fall buds in citrus nurseries should be protected by covering by two or three inches of soil during the danger period.

The foregoing presentation of citrus protective measures is not intended as a detailed consideration, but rather as a mere outline of such measures. There is no question that more effective methods for frost protection of citrus orchards, fruit and nursery stock will hereafter be followed in Arizona and that on the whole the losses of the past season will lead to the development of the citrus industry on a more secure basis than had no such losses occurred.



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A Dishonest Arabian.

[Readers who have doubted the warrant for the faint praise which we have given Arabian alfalfa, and our advice to cling to the common variety until the situation became more clear, will be interested in the following statement by Roland McKee, Scientific Assistant, Office of Forage-Crop Investigations of the Bureau of Plant Industry which we take from Circular 119 of the Bureau, just issued.—EDITOR.]

Arabian alfalfa is a very distinct variety. It was first introduced into the United States from Arabia in 1902 through the Office of Foreign Seed and Plant Introduction of the Bureau of Plant Industry, being received under S. P. I. No. 8806. The data here presented are based on experiments in the Southwest both with the original seed and later importations.

DESCRIPTION.—Arabian alfalfa is characterized mainly by its hairiness, large pale leaflets, soft hollow stems, soft crowns and roots, and quick recovery after cutting. It attains a height slightly less than that of ordinary alfalfa. The stems usually are quite erect and the plants of bushy habit. A whitish cast is given the herbage on account of the heavy pubescence. The crowns have but little tendency to spread and are high set and quite erect. There is little difference in the flowers as compared with ordinary alfalfa, the flowers of the Arabian variety being a trifle larger and of a slightly paler violet. The stems are not at all woody and the crowns and roots are very much softer than in ordinary alfalfa.

LIFE PERIOD.—Arabian alfalfa has a short life period. Grown under ordinary field conditions it will maintain a good stand for two years, but the third year the plants will be less vigorous and the stand not more than 80 per cent. In the fourth year the plants will be still weaker and the stand reduced to 50 per cent or less. When the plants are sown in wide rows and given cultivation they are more vigorous and live a year or two longer. While good cultural conditions make the growth of the Arabian variety more vigorous, its short life seems to be largely inherent.

TEMPERATURE REQUIREMENTS.—Arabian alfalfa is not cold resistant and can be grown successfully only in sections having a mild winter climate. It cannot stand zero weather without injury and can be grown successfully only in places where a temperature of 10° F. seldom or never occurs. It stands extremely high temperatures without injury, and only when soil moisture is lacking is it injured by heat. It is less drought resistant than ordinary alfalfa. While Arabian alfalfa is less hardy than others, it makes growth at a lower temperature than the more hardy types. During the mild weather of winter in the southwestern United States it makes considerable growth, while ordinary alfalfa and the more hardy varieties, such as the Turkestan and Grimm, make but little. On account of its ability to make growth in cool weather, Arabian alfalfa has a longer growing season than the ordinary or more hardy varieties. It is similar to the Peruvian alfalfa in this respect.

LOSS OF MOISTURE AFTER CUTTING.—The rate of loss of moisture after cutting varies decidedly in different types of alfalfa. The Arabian variety loses its moisture much more rapidly after cutting than the Peruvian and ordinary alfalfa. These conclusions are the results of experiments at Chico, Cal., in 1911 and 1912. In both years the weighings were made on bright days in the month of June, the first weighing being made

as quickly as possible after cutting. The moisture content of the Arabian, Peruvian, and ordinary alfalfa was found to be practically the same for all these varieties when cut at the same stage of maturity. When the plants are in vigorous growth they contain about 85 per cent of moisture if in the bud or first bloom and 75 to 85 per cent when one-tenth of the flowers are open. The loss of moisture in curing the Arabian variety is so much more rapid than in ordinary alfalfa that it must be handled more quickly in making hay in order to prevent undue loss of leaves. The rapid loss of moisture in this variety is very noticeable to anyone handling it for hay. This character is in no way objectionable and would be an advantage in some places, as its rapid drying would render it possible to make it into hay with a shorter period of drying weather than would be the case with other varieties.

NUMBER OF CUTTINGS PER SEASON.—Arabian alfalfa has the ability to recover quickly and to start growth again in a very short time after cutting. This tendency is very marked and makes it appear to grow much more rapidly than other varieties. The qualities of late-fall and early-spring growth and quick recovery after cutting enable one to get more cuttings per season of the Arabian variety than with ordinary alfalfa. At Mecca, Cal., as many as eleven cuttings of this variety have been made in a season when but eight of ordinary alfalfa were secured. At Chico, Cal., seven cuttings of the Arabian for hay and a heavy fall growth for pasturage have been obtained as against six cuttings of ordinary alfalfa. While one can secure more cuttings per season of this variety, there is not, as shown by experiments at Chico, a correspondingly larger yield of hay.

COMPARISON OF HAY YIELDS OF ALFALFA VARIETIES.—Arabian alfalfa has been grown at Chico, Cal., in comparison with Peruvian, Provence, Turkestan, and ordinary alfalfa to determine the comparative yields of hay. The Arabian variety in comparison with these varieties produced in the first two years yields about equaling the ordinary alfalfa, but in the third and fourth years its yield was greatly reduced. The Peruvian variety in each of the four years tested produced more hay than the ordinary, Provence, or Arabian with which it was compared. The Provence variety has yielded about the same as the ordinary, while the Turkestan yielded considerably less. The Peruvian stands out prominently as the largest hay-yielding variety tested.

QUALITY OF HAY.—The hay made from Arabian alfalfa is paler than hay made from ordinary alfalfa. It is also less woody and contains a larger percentage of leaves. The feeding quality of the hay is good, and for cattle and sheep it apparently is equal or somewhat superior to ordinary alfalfa.

VALUE FOR PASTURAGE AND SOILING.—Arabian alfalfa will not stand as much trampling without injury as will the ordinary variety. This is because the crowns are more upright, higher set, and of a less woody texture. A firm low-spreading crown enables a plant to stand considerable trampling without injury and is desirable in a variety intended for pasture purposes. Besides having a crown that will not stand trampling it has very soft roots that are readily eaten by stock which graze very closely or root into the soil, as do hogs. A good stand of Arabian alfalfa will be destroyed in one season if pastured by hogs and severely injured if pastured closely by any kind of stock.

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ability to make quick recovery after cutting, and its ability to make growth in cool weather the Arabian variety in these respects is desirable for soiling purposes or cutting and feeding in the green state. However, on account of its short life period it should be used only when the crop is to stand for three years or less.

INJURY BY GOPHERS.—Gophers are a serious enemy of Arabian alfalfa. They are very fond of the soft succulent roots and do much more damage to this variety than to ordinary alfalfa. It has been found very difficult to maintain individual plants of the Arabian variety in rows on this account, and in plats sown broadcast considerable damage has been done.

SEED PRODUCTION.—There is a great difference in varieties of alfalfa with regard to their seed-producing qualities. The Arabian variety produces less seed than ordinary alfalfa, and from the experience with it at Chico and other places in California it is quite evident that at best only about 100 pounds per acre can be produced. As the original home of Arabian alfalfa is in a country of very intense heat, it might be expected that hot weather would be conducive to seed setting in this variety, but experience has shown that it is injurious, causing blasting of the flowers. In the Imperial Valley of California, and at Mecca, Cal., where the summer heat is quite intense, the seed crops of the Arabian variety have been as light as at other places in that State. A better setting of seed has been secured in moderate rather more intensive heat, so that somewhat early or late in the season the heat conditions are generally most favorable for a seed crop. However, as checking the plant growth, which is conducive to seed setting, can not be accomplished as easily in the spring as in the fall, the latter period is the more favorable. The production of seed of the Arabian variety on a commercial scale in the United States is not promising, but as this has not proved a very desirable variety and as the seed can be imported at a very reasonable price the demand can perhaps be supplied with imported seed.

SUMMARY AND CONCLUSIONS.—Arabian alfalfa was first introduced into the United States from Arabia in 1902.

This variety is not hardy to severe winter conditions and can be grown successfully only in sections having a very mild climate.

After cutting, the plants make new growth more quickly than any other variety.

The herbage loses moisture very rapidly after cutting and must be handled quickly in haymaking. The hay is of good quality.

In the first two years Arabian alfalfa makes a much heavier early-spring and late-fall growth than ordinary alfalfa.

More cuttings per season of this variety can be secured than with ordinary alfalfa, but the yield of hay is not correspondingly increased.

Arabian alfalfa produces the same quantity or more hay the first two years than ordinary alfalfa, but less after the second year.

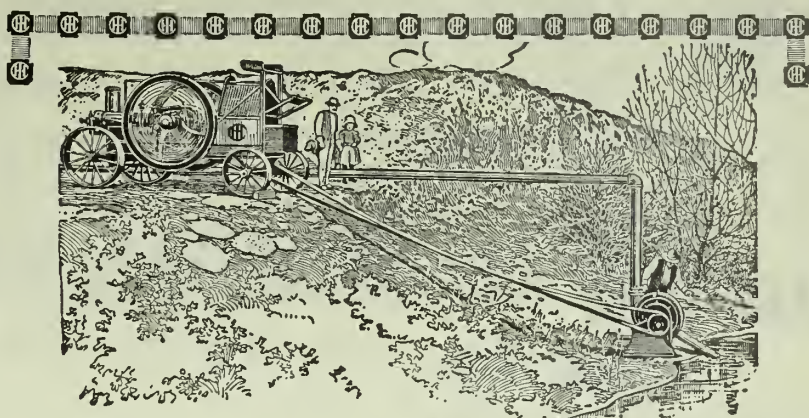
The seed production of this variety is very uncertain, and light crops only are secured.

The roots of Arabian alfalfa are very soft and gophers attack them in preference to other varieties.

The short-life period, normally but three years, is an inherent characteristic.

On account of its upright soft crown and soft roots, Arabian alfalfa is severely injured by close pasturing or heavy trampling.

This variety cannot be recommended for use except in a short rotation, and even then it should be used for soiling or hay purposes only.



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ELECTRIC AND DISTILLATE EQUIVALENTS.

To the Editor: I should like to know through the columns of the PRESS what rate one can afford to pay for electricity for pumping purposes when distillate costs 17c. to 18c. per gallon? An electric company has run their wires into this district and there is a question as to the advisability of disposing of gas engines and securing electric motors. Is there any particular type of electric motors most suited for irrigation purposes? —E. B. Du Bois, Kelseyville.

ANSWER BY F. W. KERNS.

The rate that you can economically pay for electricity in view of the possible use of a gas engine depends upon the size of the motor to be used and the length of time it will be run during the year. You have not stated these things in the above inquiry so that only general deductions can be made. An inquiry similar to this one was answered for Mr. J. T. Crimmins by Mr. Kerns in the RURAL PRESS November 9, 1912. The figures given there will probably be of interest as showing just how this worked out in a particular case.

A gas engine consumes about one-eighth of a gallon of distillate per horsepower per hour. This is an average figure based on many engines and the average condition of an engine during its life; the consumption being lower when the piston and valves are well fitted as in a new engine and higher when the engine is worn and the valves leak more or less. With distillate at 17 or 18 cents as you state, a horsepower will cost, in so far as fuel only is concerned, about 2 3/4 c. per hour.

Added to the cost of fuel should be the cost of attendance, that is the wages of the man who runs the gas engine. This item will vary from \$2 to \$3 or \$4 per day. This is about 20 to 40 cents per hour, and, depending upon the size of the engine, would be about 1 to 2 cents per horsepower per hour.

Now these two items represent what is called the operating cost and amount to about 3 1/4 to 4 1/2 cents per horsepower per hour.

A gas engine is an investment which, as in all good business, is charged with interest, insurance and taxes. Interest may be taken at 6%, and insurance and taxes at 2% more, making 8% of the cost of the engine installed. An engine has a life as does a horse or wagon; it wears out or becomes so far out of date that it is no longer profitable to run it any longer. Good business dictates that each year a part of the earnings of an investment should be set aside to provide a sinking fund so that when the time comes to get new equipment the money is at hand. The amount that is set aside each year is called depreciation, and like interest and taxes is spoken of as so many per cent per year. The sum of these charges is called a fixed yearly charge and amounts to about 18% for the gas engine and about 12% for the motor.

Now a motor costs about one half as much as a gas engine of the same power, so that the fixed charge on the motor will be only about 6% of the cost of the gas engine per year. What this will amount to per horsepower per hour will depend upon the length of time you will run it, and the size of your engine. You can figure it out for yourself. In other words take 12% of the estimated cost of the gas engine and divide this amount by the number of hours the engine will run a year. Divide this by the horsepower of the engine, and you will have the fixed charge per horsepower per hour to be added to the operating cost of the engine, to give the total cost per horsepower per hour. This fixed charge might



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amount to about 1 per cent per horsepower per hour, in which case the total cost per horsepower per hour, to be used for comparison with the electric rate would be 4¼ to 5¼ cents per horsepower hour.

Electricity is charged for by the kilowatt per hour. A kilowatt is one-third larger than a horsepower, and a motor has an efficiency such that 4¼ to 5¼ cents horsepower corresponds to 3¼ to 4½ cents per kilowatt per hour. Now if you can get electricity for this rate you will break even as far as the actual cost is concerned. If you can get it for less you will profit. If it costs more, this extra cost may be warranted by the convenience and reliability of the electricity.

The electric rates generally include a minimum or an amount that you must pay whether you use the power during the month or not. Sometimes the consumer is so far off the main line that he must bear part of the cost of building the line to his motor if he wants the electricity. In either of these cases this minimum or a fixed charge on the cost of the line must be added to the yearly cost of the electricity.

Power companies favor the use of small motors run nearly continuously. For irrigation this is accomplished by the use of a relatively small pump and a small storage reservoir. It is almost impossible to go into this matter without the details of your particular case. The electric rate is a sort of a sliding rate governed by the monthly amount, dependent again upon details, so that you had best take the matter up with the power company, which has probably an industrial engineer who will be put at your service.

It is the impression of the writer from general knowledge that with distillate as high as you say it is, electricity at most any of the ordinary rates is cheaper and better.

Postal Telegraph Bldg., San Francisco.

THE LADYBIRD BEETLE.

To the Editor: Professor Smith, Superintendent of the Insectary, has just returned from a visit to the Imperial valley where we are liberating ladybirds in great numbers. Professor Smith finds them breeding very abundantly, and without doubt they are a very powerful factor in the destruction and control of the aphids or plant lice.

The people in the valley where the ladybirds have been sent in greatest numbers are very loud in their praise. They feel that they cannot have too many of these helpful friends. We are very glad that we can accommodate them to the extent that we are able to do this year. We have collected 1600 boxes, 400 more than last year—about 53,000,000, 9,000,000 more than last year.

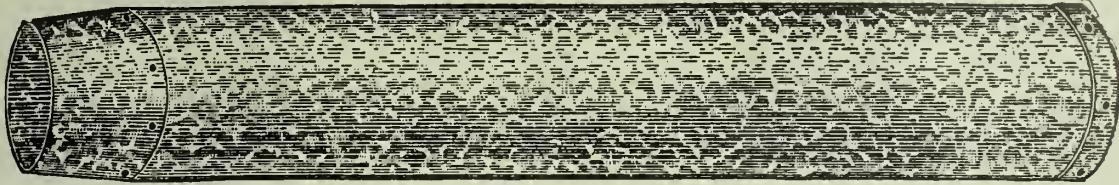
Professor Smith feels that we can make quite an improvement next year in sending them direct from the mountains to Imperial and liberating them in the barley fields. The barley fields are closely contiguous to the cantaloupe fields, and the beetles will breed on the barley aphids becoming very numerous, and by the time the cantaloupes are ready they will swarm upon the plant lice that threaten to destroy this valuable crop. This will have two advantages: It will save expense in sending them direct to the valley, and will insure their breeding up so that we shall have more of them to protect the melon fields.

If, as seems probable, we find these are a great assistance in the work of protecting against the aphids, we shall next year greatly increase our collections, and instead of having 53,000,000, we hope to have 100,000,000 more or less.

A. J. Cook.

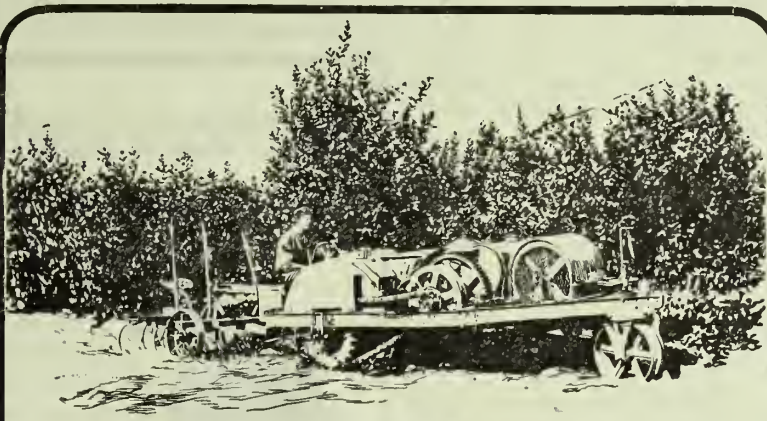
State Horticultural Commissioner.
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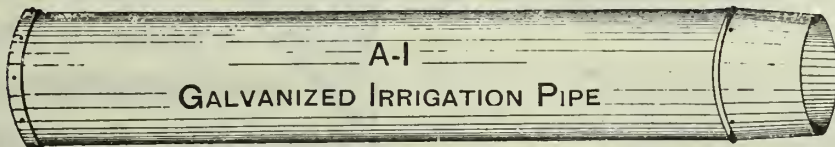
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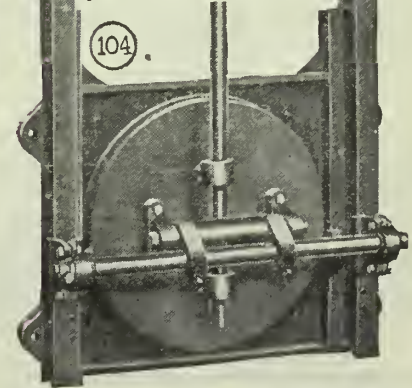
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Tuberculin Hoes a Hard Row in Argentina.

[Translated and abstracted for the Pacific Rural Press from a publication by the Argentine Government, by JUSTO P. ZAVALLA.]

The difficulties, more imaginary than real, of diagnosing tuberculosis, owing to the obscurity and feebleness of many of its symptoms, has led to the belief that it is not possible to discover the disease except by the aid of reactions having tuberculin as a basis. For a long time, owing to the popularity of the tuberculin test in the Argentine Republic, veterinarians neglected the clinical examination of the subjects thought to be tuberculous. By laboratory workers the diagnostical value of the hypodermic injection was exaggerated to a degree that it was believed to be impossible to discover the existence of the disease without that fundamental test. Later on, when the lack of accuracy of tuberculin was recognized, professional opinion altered its course. At present, investigators are searching for few methods with the conviction that the principal post of triumph in the frauds committed in the cowsheds and cattle lazarettos.

On the other hand, the Cattle Division has proved:

struggle against tuberculosis will correspond to the systems which have for a basis early and unerring diagnosis.

IGNORING CLINICAL EVIDENCE.—In Argentina, as in other countries, clinical diagnosis has fallen into disuse. In the inspection of milch cows in the Province of Buenos Aires the veterinary surgeon goes about armed with his phial of tuberculin, his thermometer and syringe only, caring little for ocular examination, which by itself would have allowed him to diagnose the disease with certainty, inasmuch as many tuberculous subjects do not react to tuberculin.

The minute examination of the lymph nodes, such as the pharyngeal, submaxillary, prescapular, axillary, or brachial, pre-crural and retromammary, is always of great importance. A simple swelling in those groups furnishes a fundamental basis for suspicion of tuberculosis. Discarding lesions easily confounded with actinomyces and actinobacillosis, hypertrophy of the pharyngeal lymph nodes with no other symptom, gives the certitude of tuberculous lesions.

It is evident that palpitation of the pharyngeal lymph node is difficult in very fat subjects, such as the bulls of our breeding establishments or imported sires. Notwithstanding, hypertrophy can be perceived in the manner indicated by Har-noir.

Chronic "meteorism," above all, when it is accompanied by emaciation and inability to fatten, makes hypertrophy and tubercular invasion of the posterior mediastinal lymph nodes probable. Increase in bulk, the real, painless hypertrophy of the mammary lymph nodes accompanied with diffuse tumefaction of the udder, is characteristic, almost always, of lesions of tubercular nature.

The presence of intermittent bloating with diarrhea is sometimes a symptom of tuberculosis of the mesenteric ganglions.

So far, regarding tuberculosis of the lymph nodes. As to pleuro-pulmonary tuberculosis, it may be affirmed that it is the most interesting type, from the point of view of early diagnosis. If its existence is ignored, subjects with open lesions are left among the herds, and give out germs more or less virulent, according to the place where they deposit them. This form, unfortunately, manifests itself with symptoms very variable and difficult to submit to fixed rules which would allow of a precise diagnosis.

There are cases where enormous lesions which are not perceptible upon auscultation nor percussion, and which, moreover, do not reveal themselves at the spot to which they anatomically correspond. Notwithstanding, with all their apparent obscurity, such lesions are manifested by distant reflexes; by changes of habit, varied manifestations which chemically may prove decisive.

Resistance to fattening is one of the most significant symptoms in this form of tuberculosis, in spite of the fact that post-mortem sometimes reveals enormous lesions in perfectly fat subjects.

CONCLUSIONS ON THE TUBERCULIN TEST.—The proof by tuberculin, limiting the remarks to what has been done in the Argentine Republic, warrants the following conclusions:

1. The ordinary dose, as well as the double dose of tuberculin, produces in many cases diagnostic reaction, in the tuberculous subject, before 12 hours have elapsed. (Experiments on "accoutumance" by the Chief of the Quarantine Lazaretto, employing doses up to 50 c.c. of tuberculin.)
2. Reaction under the same doses may disappear before the expiration of the 12 hours referred to, in the standard instructions generally followed.
3. Repeated injections of tuberculin in ordinary or double doses produce non-susceptibility to tuberculin in the tuberculous animals.
4. The greater the dose of tuberculin the greater the number of tuberculous animals which react under its influence.
5. It is desirable to take the temperature every two hours, from the moment of the injection.

To conclude, it has been proved in the Quarantine Lazaretto that by the repetition of the injections the system acquires a toleration to such a degree that there is no longer any reaction, or it is produced in such an irregular manner that it is impossible to take the results into account. Such conclusions, which have also been obtained in other countries, have taken from the hypodermic injections a great part of the value ascribed to them as an indispensable diagnostical system, and have thrown light upon the

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1. That animals which under post-mortem presented no sign of tuberculous lesion, had reacted to tuberculin.
2. That animals attacked by other diseases react under its influence.
3. That it produces no reaction in tuberculous animals.

The present Inspector General of Veterinary Police has been present at four post-mortems on animals which had reacted under tuberculin in the Quarantine Lazaretto of Buenos Aires and which presented no tuberculous lesion in any tissue.

THE BEHRING TREATMENT.—Among the animals furnished by the Cattle Division for the Behring experiments, three subjects which were examined post-mortem by the Control Committee showed no sign of tuberculous lesion. Notwithstanding, these animals had reacted under tuberculin and had, after a certain lapse of time to overcome the "accoutumance," been injected with tuberculin a second time with no result. The Director of the National Laboratory of Bacteriology, Dr. José Lignieres, has proved also the want of efficacy of tuberculin as a means of precise diagnosis.

The Inspector General of Veterinary Police, under the orders of the Cattle Division, has carried out, conjointly with Veterinary Surgeon Caminada, comparative experiments of thermo and ophthalmic reaction. One of the subjects dealt with showed no reaction under the injections of tuberculin, although it showed a positive ophthalmic-reaction. Post-mortem revealed in this subject general tuberculous lesions.

EXPERIMENTS FOR CURING.—During the experiments for curing tuberculosis carried out in Buenos Aires by Dr. Roemer, who represented Professor von Behring, tuberculosis was proved in animals which showed no reaction under the injections of tuberculin.

Independently of the weakness of tuberculin as a means of diagnosis, the Cattle Division has proved other weak points of certain importance, as follows:

It frequently produces aggravation of symptoms, and, above all, a considerable prolongation of hyperthermia, which during several days is as high as 40 or 41°C., accompanied with accelerated respiratory movements to such an extent as to become dyspnoea. In many cases the milk secretion diminishes considerably, and in some cases such diminution is maintained indefinitely in subjects which have shown reaction.

DEMONSTRATION OF EFFECT ON MILK-YIELD.—In the country dairies of the Argentine Republic, tuberculin always produces a perceptible diminution in the milk-yield, even in healthy animals. In unstabled animals intended for the milk trade, tuberculin is extremely prejudicial, as, over and above the natural effects of the tuberculin, the effects of climate, to which the animals are subjected, the change of habits and the hardships undergone in the operation of tuberculinization must be considered. These ill effects have been recorded in all the rural milk establishments where thermo-reaction has been effected.

In conclusion, Dr. Bidost thinks that the thermo-reaction is a good means of diagnosis, but offers difficulties which make it impracticable on a large scale among the country-bred cattle in the Argentine.

Its application is far better for diagnosing tuberculosis in stalled cattle. The ophthalmic and cuti-reaction is superior to the hypodermic injections of tuberculin for use in rural sections. Concerning this new method, there is no need to insist, as it is the result of investigations carried out by Calmette, Wolff, Vallée, von Pirskét, and successfully tried by Lignieres in Argentine.



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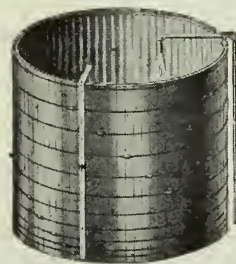
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The Right Kind of a Horse.

[Written for the PACIFIC RURAL PRESS by
W. M. CARRUTHERS.]

In spite of the dry season, some of our horsemen have done a nice business. In the last few weeks Henry Wheatley has sold two horses in Hollister, this making seven Shires sold in Hollister by the Salvador Stock Farm. He has sold one in Sonoma county, one at Clayton, one in Modoc county and one at Wheatland. He is nearly sold out and well satisfied with

his season's work.

Mr. Wheatley is doing a great work for the draft-horse industry of our State among the farmers and stockmen. His real success lies in the fact that he is handling nothing but first-class Shire horses. The proof of this was illustrated by his great winnings at the last State Fair at Sacramento.

We need more Shire horses in California to make ton horses for the San Francisco market, because a horse is not really

a drafter unless his weight comes near the 2000-pound mark.

The writer recently spent a very pleasant half-hour with the head of one of the largest draying firms on the Pacific Coast, and during the conversation this draft-horse buyer informed me that the trucks which have been especially built to comply with the needs of San Francisco draying require ton horses to move them. He further stated that these heavy draft horses, generally speaking, are raised in the East and shipped here. Perhaps our breeders here are not aware that we are better able to raise heavy draft horses than are the farmers in the Middle West and the Eastern States. We have the rich bottom lands which compare favorably with the fen lands of Lincoln and Cambridge where have been raised the greatest draft horses the world has ever produced.

It is the same old story which is causing us to lag behind in the production of real drafters: the care and development of the young.

At his best the Shire is a magnificent drafter. He has begotten a vast number of high-priced geldings from native stock. It is on record that the highest price ever bid for a gelding in the Chicago market was bid for a red-roan of this breed. Bulk and strength, depth of flank and rib, and plentitude of bone are pre-eminently attributes of the Shire. These are qualities which we require in the grading up process, and there is no question that many of the best geldings ever got by French Stallions have been out of mares of English blood. It has been claimed for the breed that grading up may be accomplished to greater size with the Shire more quickly than with any other breed. The writer believes this to be correct. Mares carrying from one to three crosses of Shire blood are now perhaps as valuable stock as can be found on American farms, and their foals command the highest prices, no matter to what breed of drafter the sire may belong. In short, the grade Shire mare seems to assimilate readily with whatever stallion she may be coupled, handling her own bulk and strength. In this regard I count her especially valuable. Everybody likes a good Shire gelding. His massive pro-

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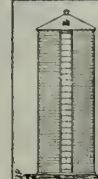
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Fine Developed Alfalfa Land

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HORSES AND MULES.

REGISTERED PERCHERONS FOR SALE—Send for list to owner. All acclimated. Two gray stallions matured. State certificates of soundness. One 2-year-old black stallion. One white brood mare. Four black brood mares. Prices low owing to owner's illness. Send for list. M. E. Sherman, R. R. 6, Box 86, Fresno, Cal.

FORTY HEAD unbroken mules from weanlings to four-year-olds to exchange for broken stock up to twelve years of age. Young mules located near Stockton. Address Room 715, 704 Market St., San Francisco.

PURE-BRED REGISTERED PERCHERONS AND BELGIANS. A few choice young stallions from three to five years old, also two and three year old fillies for sale. Los Altos Stock Farm, Los Altos, Cal.

PERCHERONS—Pure-bred, registered, 2-year-old stallions for sale; or will exchange for draft horses or stock cattle. H. T. Lillencrantz, Aptos, Cal.

REGISTERED BLACK PERCHERON Stallion, Joaquin, No. 77186; three years old next April. Price reasonable. F. S. Israel, Linden, Cal.

BIG BONED BREEDING JACKS for sale. Jas. W. McCord, Hanford.

RUBY & BOWERS, Davis, Cal.—Registered draft stallions, all breeds.

BEEF CATTLE.

SIMON-NEWMAN CO., Breeders of Registered Herefords. R. M. Dunlap, Manager, Newman, Cal.

SHORT-HORNS—Villager heads the herd. D. R. Hanna, Ravenna, Ohio.

T. B. GIBSON, Woodland, Cal.—Registered Short-horns and Poland-Chinas.

HEREFORDS—Fairfax Perfection heads herd. J. P. Cudahy, Belton, Mo.

HEREFORDS—Gay Lad 6th heads herd. O. Harris & Sons, Harris, Mo.

portions, strong back, wide, well sprung ribs, long straight stride, and generally powerful appearance commend him to all. In the higher crosses, the mass of hair about the shanks is undoubtedly a detriment, which is but one further proof that the interest on this side of the ocean is suffering from the disregard of its needs displayed by the English breeder.

Still, despite this drawback, and the further one supplied by his often too straight pasterns, the elements of success in the betterment of our draft stock in here deeply in the Shire. His prepotency is acknowledged. His showing in the market-place, numbers considered, is adequate. He has undoubtedly suffered from the very fact that his grade mares produce so admirably to stallions of other breeds. That many Shires have been crossed out of their breed continuously, making for the glory and renown of others, is well known. His numbers are not great in this country, actually or relatively. He has never been the favorite of the rich fancier, nor has he ever enjoyed the patronage of any of the monumental characters in the breeding business, though his destiny has been guided by some very shrewd men, and he has made good for many a poor man.

HOW TO FEED PIGS.

To the Editor: What is the most profitable amount of grain to feed to spring pigs while on alfalfa pasture, from the time of weaning to the time of marketing? Pigs to be marketed at eight months of age, weighing about 200 pounds.

Davis.

T. W. W.

ANSWER BY CHAS. GOODMAN.

We don't consider the feeding of whole grain to hogs of any age profitable while running on green pasture. On almost all kinds of land they will get enough grit to keep their teeth sore, hence they will not masticate the grain thoroughly. Perfect mastication is very essential.

We would feed the pigs all the slop that they would clean up good twice a day. The slop to be composed of equal parts of corn, barley meal ground fine, and wheat middlings mixed with milk. There is nothing in all the world like milk for growing pigs. If milk is not to be had, we would add from 5 to 10% meat meal, which we consider next to milk. If whole grain is to be used, it should be thoroughly cooked on account of the pigs' teeth not being in condition to chew the hard grain. If any reader of the RURAL PRESS can give a better method, we would be under many obligations to him for it.

Williams, Cal.

TRESPASSING LIVE STOCK.

To the Editor: Is there a fence law in this State? In other words do I have to fence against my neighbors' stock, or, does the law require him to care for his stock and keep it off of my property.—Subscriber, Colfar.

[The old "no-fence law" which was enacted during the troubles between wheat growers and stock rangers has been put out of commission by more recent legislation. The trespassing live stock is liable for damage, but just how to proceed to protect yourself you should learn from a local lawyer who knows statutes and your county ordinances also. We haven't much confidence in newspaper law: it usually misses more than it hits. —Editor.]

FLEAS IN THE BARN.

To the Editor: If the person who has fleas in the barn can turn a hose in it and thoroughly soak up all the dust and keep it well wet down for several weeks it will end the fleas. The ground should

be soaked till it won't hold any more. Last year the fleas were so bad in my barn that it was miserable to man and beast, and this method was entirely successful. F.

POISONOUS WATER HEMLOCK.

To the Editor: I am sending to you by mail a little plant which grows on the low, wet land on this dairy ranch. The dairymen here tell me that if the cattle eat it, which they frequently do, it will kill them as it is of a poisonous nature—especially the root, which they pull up and eat. Can you tell me the botanical name of the plant, and if it really is poisonous to cattle? I am under the impression cattle will not eat poisonous herbs. An answer through your valuable paper will be thankfully received.—W. W. THEOBALD, Walnut Grove.

ANSWER BY DR. H. M. HALL, BOTANIST OF THE UNIVERSITY EXPERIMENT STATION.

The weed mentioned by Mr. Theobald is the Water Hemlock (Cicuta). It is an exceedingly poisonous plant and is especially feared since the poison acts so quickly upon animals that it is almost impossible to administer the usual remedies. It may be known from other plants which grow up in damp places by the nature of the rootstock, that is, the underground part of the stem which resembles a root. If this is sectioned vertically with a pocket knife one may readily detect the characteristic chambers which are caused by the horizontal partitions. The specimen submitted was so young that these chambers are not evident of such, but are indicated by very definite horizontal lines. The plant is a member of the Parsley family, possesses ample compound leaves and later in the season sends up stalks several feet high terminated by umbels of small whitish flowers.

Animals readily eat rootstocks which are not very deep-seated and are easily worked out of the soft ground through the trampling of the stock. In one case where a band of sheep were admitted to the burned tule fields where this plant was abundant, 45 head were killed in 15 minutes. The best precaution is to know the plant in order that stock may be herded or fenced away from fields where it grows. Eradication is not feasible except when it is restricted to water courses. It does not grow on well drained soil.

The impression of your correspondent that cattle will not eat poisonous herbs is not correct. If this were true we would not witness the loss of thousands of head of live stock each year through this means. It is true that many poisonous plants are distasteful to animals, but even these are eaten when other food is scarce, but unfortunately all poisonous plants are not even distasteful.

Berkeley.

WANTED: SOME HOG FLEAS.

Edmund Wyndham, of Redding, writes to us about getting some pure-bred stock and winds up with the following commission, apropos of the flea eradication symposium that has been conducted in these columns recently:

"Now, what I want is this: two full-blooded fleas which must be actually found on a hog. I am willing to pay \$1 each for the same. Now I am depending on you in this matter to see that I get actually what I ask for and not to let any unscrupulous person send me a flea which may have found them as they walked around the sheds where the hogs lie. I hope you will fill this order promptly and conscientiously."

The California Eucalyptus Co. has decided that alfalfa is a better proposition than eucalyptus and has seeded 115 acres of land near Pixley, Tulare county.

\$65,000,000

would be saved annually by the exclusive use of

DE LAVAL CREAM SEPARATORS

It is estimated that a million cow owners in the United States are still skimming their milk by some wasteful "gravity" method.

At an average of four cows to the farm and an average cream loss of \$10 per cow per year (it is more often from \$15 to \$25), all of which could be saved with the use of a De Laval Cream Separator, this alone represents an annual cream loss of \$40,000,000.

Then there are, all told, perhaps a half million inferior and old and worn out machines in use whose owners could easily save \$5 per cow per year by exchanging their "cream wasting" machines for De Laval's, and figuring on an average of six cows per farm, this represents another loss of \$15,000,000 at least.

Then to this tremendous cream waste through the use of inferior separators must be added the excessive cost for repairs on cheap and inferior machines and the cost of replacing machines which should last from ten to twenty years, but which are ready for the scrap heap in two or three years. There must also be taken into consideration the loss in lower prices received for cream and butter due to inferior quality of cream produced by poor separators, all of which must easily equal at least \$10,000,000 more.

This makes a grand total of \$65,000,000 which would be saved to the cow owners in this country by the exclusive use of De Laval Cream Separators.

At first sight these figures may seem startling, but any experienced dairyman or creameryman will agree that the cream and other losses without a separator or with an inferior one will average a good deal higher than the above estimates and that these figures are really very conservative.

Any cow owner who is selling cream or making butter and who is not using any cream separator or an inferior machine, is really paying for a De Laval in his cream losses and at the same time depriving himself of the benefit of its use.

De Laval Separators are not only superior to all others in skimming efficiency, but are at the same time cheapest in proportion to actual capacity, while they are so much better made that they last from two to ten times longer.

No cow owner can logically make the excuse that he cannot afford to buy a De Laval, because it will save its cost over "gravity" separation in six months and over any other separator in a year and is sold for either cash or on such liberal terms that it will actually pay for itself while it is being used.

It will surely be to your advantage to join the million and a half satisfied users of De Laval's. A little investigation will prove to you that the truth of the matter is you really cannot afford to sell cream or make butter **WITHOUT** the use of a De Laval Cream Separator.

The nearest De Laval Agent will be glad to demonstrate this to your own satisfaction or you may write to us direct.

The new 72-page De Laval Dairy Hand Book, in which important dairy questions are ably discussed by the best authorities, is a book that every cow owner should have. Mailed free upon request if you mention this paper. New 1913 De Laval catalog also mailed upon request. Write to nearest office.



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SEATTLE

Some Seasonable Poultry Wrinkles.

[Written for the PACIFIC RURAL PRESS by
SUSAN SWAYSGOOD.]

A writer, even on poultry matters, is like a preacher, often hard up for a text. This is especially the case when one happens to be in the thick of it, the "it" being hatching, feeding, coaxing older chicks back to where they belong and looking up stray chicks a mean old hen has willfully neglected.

This being the case and the day being that upon which our copy is usually gotten off to the mail, we were more than glad when the mail brought an enquiry from a subscriber that gave us something to talk about. The writer Mrs. M. says: "I have enjoyed your articles so much and they have been so helpful that I venture to come with a problem. Some time ago you spoke of feeding green bone to hens, but I am not where I can get green bone, and my hens are laying so many soft shelled eggs that it is getting to be a rule rather than an exception to find one or two under every perch in a morning; would you advise dry bone, and would it pay to buy a bone mill to grind it?"

How to Use Bone.—Answering the last question first, it certainly would not, unless you are able to get the bones from several families close by. The ground bone sold by dealers, while not so good perhaps as the home product, does very well, and is much easier to use for the purpose you speak of. For this soft shelled egg trouble I would mix fine ground bone meal in the mash and also put in some fine ground oyster shell, and make the whole mash of rather coarse material.

It sounds to me as though your hens were too fat, if you are feeding corn in any way, stop the use of it for a time until you make a change in conditions. In addition to the fine bone in the mash keep the larger sized bone in a box or bopper where the hens can help themselves, you need not fear that they will eat too much, they will not eat more than the system calls for, unlike the meat products it does no harm if they eat more than we think is good.

But though bone in any form is one of the very best things I know of for curing this trouble, prevention is very much better. The real trouble lies in something else, perhaps in the fowls being too fat. Or it may be some exciting cause, such as strange dogs, cats, or children that scare the hens. I would look up the cause, then the remedy can be applied scientifically. Is not that a big word to use in chicken talk? But then we need just as much science in poultry-raising as in other matters. And after all, what is science but knowledge boiled down? Getting at the real cause of any trouble is the only way to cure it so it stays cured.

ABOUT MITES.—Just this afternoon a woman came to ask me what was good to use for chicken lice. I asked what kind of lice, and she did not know. But after a few enquiries I obtained the information that these lice were mites, because she said they were causing the horses to rub all the hide off their tails. Now just imagine people being so neglectful as to let mites get such a hold that they attack their farm horses, and the woman says she can't gather the eggs because the lice get in her hair and on her neck and face and just about drive her crazy. Now the whole building must be infested, and it will have to be a fight to the finish to rid it of these mighty little mites. To use any strong-smelling lice killer will be bad for the horses; if they were my premises I would feel like burning them down as the best way out of the difficulty—but here is what

I advised: Clean up the poultry-house and stable, thoroughly—no half-way doings will be any use at all; get all rubbish out of manger and from corners and cracks; sweep all cobwebs down in both barn and chicken-house, and gather up every bit of this rubbish into a pile, then pour on a gallon of coal oil and have a good bonfire.

This is the first part, and you must make a good job of it, or the next part of the work will be thrown away. Now take a bar of good yellow laundry soap and dissolve it in a gallon of water; when the soap is all dissolved, take from the fire and add two gallons of coal oil, stir or churn with a little bunch of brush until it is of a creamy consistence, then add water to make about twelve gallons, and, to make it extra good, a pint bottle of carbolic acid crystals. This will be very effective in the stable; after spraying, wait three days, then spray again, and yet again, for nothing less than three sprayings will get all of them, and it may take several times three, just according to how well the task is done and how well the dirt was cleaned up to begin with. Put equal quantities of olive oil and coal oil in a can and apply this to the horses' tails and wherever the mites appear to bother them, and they will let them strictly alone. Coal oil burns when applied alone, but olive oil, or even grease mixed with it prevents the burning.

GREEN FEED FROM THE LAWN.—Now here is something for those who have lawns and want to have a continual supply of green feed. Get a barrel with a cover and every time you mow the lawn put in this barrel what clippings are left over from feeding the hens and sprinkle salt in it. Put on the cover and keep in a shady corner with a wet sack hung over the barrel. After the barrel is filled, cover and put a weight on, but always add a handful of salt to every new lot put in. This might be termed a silo on a small scale, and the green stuff will be doubly welcome towards fall when things are not growing very fast.

Or if you want to make hay of your lawn clippings—and, say, this is great for little chicks to scratch and feed in—mow after the sun gets out strong, then rake up in the afternoon and leave in little cocks to cure; when ready, put in sacks and hang up from rafters in barn or chicken-house, and you will never regret the trouble.

DANGER IN SMUTTY GRAIN.—I have heard several complaints this spring of fowls being poisoned without knowing the cause. But I think from what I could hear that the trouble has been caused from smut in grain. There has been a good deal of northern wheat shipped in this part of the country that has been damaged by rain. Smut in grain is what may be called ergot and is rank poison, and we pay about \$1.90 per hundred for stuff that kills the hens.

Some dealers have a little conscience, and when it comes too badly damaged they send it back or refuse to accept the shipment, which perhaps just changes hands. We have so many laws that are nothing but dead letters, that there is no use talking pure food laws for animals, and yet such stuff ought not to be sold. Anyway, we need no law to make us refuse to pay out good money for poisonous feed, so when you are offered smutty grain, just refuse to buy it; if dealers cannot sell it they will not but it. I am told, on good authority, that thousands of bushels of wheat and oats, that have been damaged by rain and held all winter in the hope of drying out, are sold for from 10 to 15 cents per bushel

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OUR GOLDEN ANTLERS AND SILVER CAMPINES took several first prizes both for the fowls and the best white eggs at San Jose, November, 1912. From Jan. 1st to Oct. 31st, 23 hens laid 4148 eggs, and are still laying. Crystal White Orpington and Antler pullets for sale. Eggs, \$1.50 per 15. S. & B. G. HAIGH, Route 2, Box 4C, San Jose, Cal.

THE MANOR FARM RHODE ISLAND REDS have won more prizes, cups and specials during this season at the big important shows than all their competitors. They have the typical shape and rich red color. Eggs, chicks and breeding stock all the year round. Exhibition or utility and satisfaction guaranteed. The Manor Farm, Petaluma, Cal.

THE MANOR FARM HATCHING EGGS—Day old chicks and stock from best quality. S. C. White Leghorns, S. C. Black Minorcas, Barred Rocks and Orpingtons. Send for illustrated price list—it's free. The Manor Farm, Petaluma, Cal.

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WHITE ORPINGTONS. The finest of thoroughbred breeding stock for sale at all times. Eggs for remainder of season \$3 per 15. Jeanne A. Jackson, Oroville, Cal.

CROLEY'S POULTRY CONDITION POWDER—A tonic for Poultry. 25-lb. Galvanized Pails, \$2.00. 5½-lb. can, 50c. 2½-lb. can, 25c.

BABY CHICKS.—Eggs for hatching. Buff Minorcas, White Orpingtons, White Plymouth Rocks, White Leghorns, thoroughbred Hoganized stock. Mrs. C. A. Sanford, Mountain View, Cal.

PHEASANTS—Ring-necked China pheasants for sale; also eggs in season. Address T. D. Morris, Agua Caliente, Sonoma Co., Cal.

BROWN LEGHORN ROOSTERS, chix and eggs, same in Barred Rocks, White Minorcas. W. S. Rose, Yuba City, Cal.

S. C. WHITE LEGHORNS—Heavy layers, California's greatest prize winning strain. Eggs, chicks, stock. Send for list. M. Dutterbernd, Petaluma.

CHICKS—White Leghorn, White Rock, high-class stock. Send for booklet of prices. Mahajo Farm, P. O. Box 597, Sacramento, Cal.

ORPINGTONS—Buff and White. Eggs, \$2.50 a setting, April and May. Mrs. S. Swaysgood, Route 2, Pomona, Cal.

FOR SELECTED EGGS AND CHICKS from S. C. White Leghorns, see Hopland Stock Farm advertisement.

BABY CHICKS, from heavy layers. White Leghorns, Barred Rocks, R. I. Reds. Free folder. White Hatchery, Petaluma.

BUFF ORPINGTON AND COLUMBIAN WYANDOTTE; eggs and stock. Mrs. Leona Brophy, 1415 N. St., Fresno.

BARRED ROCKS ONLY—Now is the time to order your eggs and hatched chicks. Send for price list. G. L. Hawley, Madera, Cal.

BARRED PLYMOUTH ROCKS, White Minorcas, White Holland turkeys. Stock and eggs only. L. N. Cobbledick, Oakland.

CHICKENS, DUCKS, GEESE, GUINEAS, Pea fowl. Address Wm. A. French, 545 W. Park St., Stockton, Cal.

TRAPNESTED S. C. WHITE LEGHORNS. Eggs, chicks, stock. A. R. Schroeder, Box P, San Gregorio, Cal.

WHITE LEGHORNS—Chicks, eggs, cockerels. Fine stock. Reasonable. O. B. Morris, Lodi, Cal.

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BRONZE Turkeys and Eggs. Ed Hart, Clement, Cal. Large size, good plumage, early maturity.

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during early spring months in Washington and Oregon.

SOUR CROP.—About a month ago one of my hens stood around all day without eating, so in the evening I caught her by the leg, and immediately my nostrils were assailed by the sourest kind of smell in years. Almost a pint of sour water flowed from that hen's craw, so I gave her a dose of carbonate of soda, half a teaspoonful moistened with water. Next morning I expected to find her better, but she was not any better that one could notice, the craw being filled with the same sour liquid. Being very busy that day I just gave her a tablespoonful of olive oil and let her go. Next day there was very little improvement, so I sent for some bismuth subnitrate; putting 15 grains of this to 4 grains of carbonate of soda, and adding 1 ounce of water that had been boiled and cooled, I emptied the crop of its sour contents and gave one teaspoonful, keeping the hen without food; three doses cured her, then I fed her some soft feed for a day or two and she was all right. There was some inflammation, or the carbonate of soda alone would have cured her; this is a very good thing in sour crop, but in that case it would not work alone.

Sometimes a few drops of muriatic acid will work wonders in sour crop or indigestion, but I rarely ever use drugs of any kind for poultry and never for myself. Doctors should be paid to teach people how to keep well instead of curing them after they get sick.

We are in receipt of the first month's egg-laying record of the Napa egg laying contest. The record is not put in as near a condensed form as it might be and will take up quite a little space. The pens in the Missouri contest are numbered, so that in referring to any pen it can be done in a much less space and it is clearer to the reader's mind after he has finished reading. Another item of economy is the putting all pens of one breed or variety below each other; this saves a lot of extra work in re-printing. Perhaps Mr. Rutherford will catch the idea next month and save the poor type-setter needless work. It is none of my business, but this printing of names savors a little of free advertising, and this should only come after the hens have merited it for their owners. The number of each pen would be sufficient at this stage of the game, with the names coming later. We will take the matter up in its later stages.

NAPA EGG-LAYING CONTEST.

(Continued From Page 465.)

the lighter breeds lay off. The fowls are fed grain in litter between 7 and 7:30 in the morning, and a small feed of grain in the litter at noon. We feed two parts wheat to one of corn. The mash is fed between 4 and 5, and consists of, for one feeding: Wheat, 9 lbs.; middling, 6½ lbs.; cracked corn, 6½ lbs.; bran, 5 lbs.; soy bean, 2 lbs.; meat scraps, 2½ lbs.; and ground bone, 2 lbs.

The Napa County Poultry Association was organized to promote the poultry industry of Napa county, and to help those who are already in the business. Last year we gave a very successful poultry show, but some of the members did not believe they received very much benefit therefrom, so we decided to hold a contest and get the members interested in improving the laying qualities of their flocks; incidentally to prove to people generally that all White Leghorns are not good layers and that to succeed in the poultry business even a flock of White Leghorns has to be selected. As we have twenty-four pens of White Leghorns in the contest, with records landing some at the top and some at the bot-

tom, I believe we will succeed. We are also trying to demonstrate that Napa is really a "live wire" in the poultry business.

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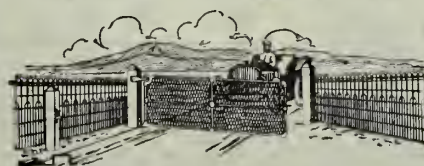
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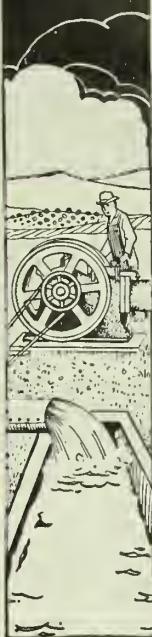
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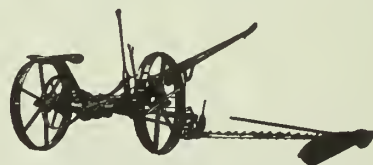
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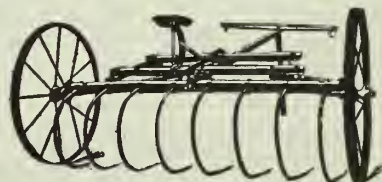
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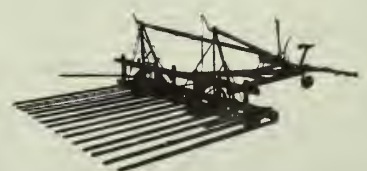
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Petaluma, Cal.

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AGENTS—\$173 IN TWO WEEKS, MADE by Mr. Williams, Illinois, selling the Automatic Jack, Combination 12 tools in one. Used by auto owners, teamsters, liveries, factories, mills, miners, farmers, etc. Easy sales, big profit. Exclusive county rights if you write QUICK. Automatic Jack Co., Box C, Bloomfield, Indiana.

HELP WANTED.

A large ranch wants steady man to take charge of fruit trees, nursery stock and garden. Must have general experience with budding, grafting and care of trees. Will start right man at \$50 per month and found. Give references. Box 65, Pacific Rural Press.

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WANTED—Field boss for large orchard; competent to take entire charge of pruning, cultivation, thinning, gathering and irrigation. Address, stating age, experience, salary expected, etc., Box 30, Pacific Rural Press.

FARMS WANTED—We have direct buyers. Don't pay commissions. Write describing property, naming lowest price. We help buyers locate desirable property free. American Investment Association, 93 Palace Bldg., Minneapolis, Minn.

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FOR SALE—A lot in Riverdale Park at Boulder Creek; only a short ride from Santa Cruz. For further information, address A. T. RUDRUM, Lathrop, Cal., Route 1, Box 137.

If you want cheap, high-class suburban acreage joining the city of Sacramento in tracts of from 1 to 10 acres, write today for our attractive folder and details of the greatest land proposition ever offered in California. NORTH SACRAMENTO LAND CO., Owners of North Sacramento, 1004 K Street.

STOCK RANCH

Situated at the mouth of the beautiful Arroyo Seco Canyon, ten miles South of Soledad and six miles southeast of Paraiso Springs, see map of California. This ranch contains a total of 1500 acres; 900 acres of farm land sowed to grain and alfalfa, and 600 acres of fine grazing land. On the ranch are 60 mares, 30 yearlings and two-year-old colts, 20 head milch cows, 175 head fine hogs, one large imported "Jack" stands 16½ hands high, one pure-bred Percheron imported stallion. This ranch is thoroughly equipped with a complete stock of farming implements, all in first-class condition; has a house of 8 rooms and bath, 2 barns, blacksmith shop, granary, wagon sheds, one 15 H.P., one 6 H.P. and one 2 H.P. gasoline engines, electric lights, and one 15 H.P. motor and irrigating pump, telephone and all the conveniences of an up-to-date farm. A complete ranch watering system installed at a cost of \$1000; also a vegetable garden of 4 acres; \$1000 can be realized from oak wood each year. Forty horse and mule colts are due this spring.

This is a snap for \$67,500. Write me immediately.

KARL T. ROMIE, Soledad, Monterey, Cal.

TREES AND NURSERY STOCK.

AVOCADOS (budded), Feijoas, Cherimoyas, and other subtropical fruiting plants and trees. We have the largest and finest stock of budded avocados, and the best varieties. We grow only subtropical fruits of proven adaptability and sterling merit. Send for pamphlet. WEST INDIA GARDENS, Altadena, Cal.

"LIPPIA"—the Drought-Resistant Lawn Plant—handsome as bluegrass and ten times harder—poor soil, hot sun no drawback—never becomes a pest. Write for circular to JOHN SWETT, Martinez, Cal.

FEIJOA—This superb new fruit is hardy all over California. Sure to be one of our great commercial fruits. Write for prices. COOLIDGE RARE PLANT GARDENS, Pasadena, Cal.

FOR SALE—20,000 rooted seedling olive trees, ready to be set in the nursery. This stock will be large enough to bud or graft this fall. G. A. Lathrop, 605 Delta Bldg., Los Angeles, Cal.

NURSERY TREES, fruit and ornamental. Nearly all varieties to be seen on our experimental place near State highway. LEONARD COATES NURSERY COMPANY, Morganhill, California.

FOR SALE—Sweet orange seed-bed stock; fine two-year-old trees can be budded soon; not hurt by frost. R. TOON, 1337 W. 24th St., Los Angeles, Cal.

VILLA ANNA NURSERY—Fruit and ornamental trees. Burbank standard cactus a specialty. Santa Rosa, Cal. Write for catalogue.

CASH NURSERIES—Burbank cactus a specialty. Trees of quality. Sebastopol, Cal.

E. A. Bennett, of Ducor, Cal., will quote you sour orange seed, delivered to any postoffice.

AGRICULTURAL REVIEW.

Fruit Progress.

While most northern apricot growers are expecting a very light crop, the Pajaro valley apricots are said to be in almost perfect condition, and nearly a full crop of first-quality fruit seems assured.

Big plantings of trees in Butte county were made in March, Commissioner Earl Mills reporting the inspection of the following stock for the month: Apple, 6654 trees; peach, 4872; prune, 3404; pear, 2200; olive, 1030; almond, 653; walnut, 596; orange, 239; grape vines, 210; cherry, 135; apricot, 54; fejoa, 50; quince, 25; fig, 7; avocado, 5. There were also about 100,000 seedlings consigned to local nurseries.

Berries are coming along nicely on the farms around Biggs, Butte county. A. J. Edgerton, who set out 12,000 berry plants last fall, has ripe berries already and claims to have counted 200 berries on one vine.

The Heinz Pickling Co. seems to have appreciated the possibilities of California all right. They are planting out 90 acres of land between Richfield and Corning to olives, getting water from wells.

The Sebastopol Berry Growers' Union is to build a pre-cooling plant, to cost \$2000. This will enable many more berries to be shipped and many more markets to be served, with a big improvement in the quality of the fruit as it arrives in the markets. This should prove a big boon to the growers.

Extensive planting to avocados will be made by Maurice H. Brown on a 320-acre tract in the El Sobrante Rancho, Riverside county.

Stock Notes.

The high prices for hogs reached at the Portland Stockyards could not last, dropping from \$9.60 to \$9.30. Still, \$9.30 is not so bad. The bulk of steer sales have been running from \$7.60 to \$7.90, with one load of tops going at \$8.25. The few sheep sales have been high.

Dairy cow prices are hardly what they were a year ago, owing to dry weather. At an auction sale near Hanford last week the prices for 165 head of grade stock ran from \$45 to \$80.

H. R. Alexander, of San Ardo, has added to his holdings the 400-acre ranch of C. J. Russel in Sargents canyon, east of San Ardo.

A. A. Barthoff, of Pennsylvania, has purchased the 320-acre dairy ranch of R. A. Van Loan, seven miles southwest of Fresno.

F. E. Mobley, formerly of Turlock, has gone into the dairy business at Fallon, Nevada. He purchased the entire pure-bred Jersey herd of J. Grant Morse, of

MISCELLANEOUS.

SPECIAL—2 choice Berkshire brood sows, in pig by Kennett, to farrow in May, \$60 each. Calla Grove Farm, Ripon, Cal.

Dairy route; only wagon in town; 18 cows and necessary equipment. Address W. B. Smith, Lakeport, Cal.

GAS ENGINES REBUILT IN OUR SHOPS give the same satisfaction as new ones. Expert mechanics rebore the cylinders, make new pistons, and rings, and refinish all bearings and wearing parts. Every engine carefully

tested for capacity and operation and sold with a rigid guarantee. As we can furnish any size or make at extremely low prices, you cannot afford to purchase an engine without first getting our proposition. We can refer you to many satisfied customers. SPECIAL: 4-hp. Samson, \$100; 4½-hp. Olds, \$115; 6-hp. Peerless, \$125; 8-hp. Samson, \$145; 10-hp. Samson, \$170; 20-hp. Callahan, \$400; 25-hp. Union, \$410. Information cheerfully furnished. Write today. MECHANICAL INSTALLATION CO., Engineers, 181-189 2nd St., San Francisco.

Hamilton, N. Y., and has a herd that is attracting the most favorable attention in the district.

Napa Egg-Laying Contest.

The 15 leading pens in the Napa Egg-Laying Contest are averaging a higher percentage of eggs per pen than are the 15 leading pens of the National Egg-Laying Contest being conducted at the Missouri State Poultry Experiment Station at Mountain Grove. There are 10 hens in each pen in the Missouri contest and only 6 in the Napa contest. The comparisons are based on an average record of 6 hens in the Missouri contest for the month of February and of 6 hens in the Napa contest for the first 28 days of the contest, commencing February 20. Six hens in the Missouri contest made a total of 117 eggs, an average of 19.5 per pen. These were White Orpingtons. The best 6 of one pen of S. C. White Leghorns averaged 18, also the Black Langshans; others went from 17.8 average down. The best pen of S. C. White Leghorns averaged 20.5 per hen in the Napa contest; Buff Orpingtons, 19.8; White Plymouth Rocks, 19.5; and S. C. White Leghorns, 18.3.

Poultry Activity.

One of the largest regular poultry shows of California is planned for in San Francisco by the organization of the San Francisco Poultry, Pigeon and Pet Stock Association. The first show will be held December 31, 1913, to January 4,



PERFORATED TREE PROTECTORS

TO CITRUS GROWERS, if the recent frost has caused the leaves on your young trees to drop so they will not protect the body from the hot sun, which will spoil a good many of them if not protected, let us supply you with wraps for them. Others are going to do it, why not you? You can't afford to let your trees go unprotected when for about a cent each you save all of them.

Also a word to you who are planting deciduous trees.

Last season we sold over a million Perforated deciduous planters, and they find it was money well spent. You know that rabbits, hot sun, sand storms, raking of bark in cultivation, etc., always causes a loss that will many times more than pay for the Perforated to protect your whole planting. Let us sell you Perforated. We have the only Perforated ones made. Write for sample and price.

The Expan Protector Co.

935 Central Ave., Redlands, Cal.

FREE! THIS BOOK

A practical booklet on up-to-date methods and principles of pruning all kinds of orchard trees, by L. H. Day, Horticultural Expert.

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To Any Orchardist

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Fruit Growers' Ass'n.,

and mentions name of

same. Sent to others for

cost of mailing, 4 cents.

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Manufacturers of the

"STAR ORCHARD LADDER"

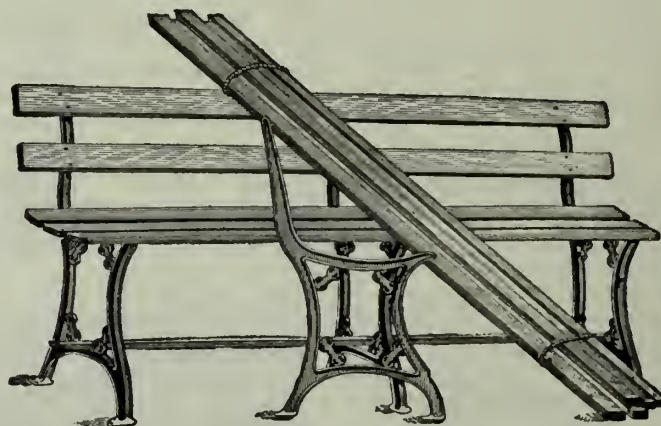
The strongest, lightest and best orchard

ladder on the market, at any price.

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Improve the looks of your lawn and veranda and add another comfort to the home. Benicia Benches will do both.

The comfort and pleasure derived from your lawn and veranda is a real help to you in your daily work. You can always think clearly and from a better point of view if your surroundings are pleasant.

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Factory: Benicia, Cal.

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Improved machinery and methods enable us to sell you this pump for less than you can buy any other make.

Our retail prices are less than our competitors' wholesale prices.

We guarantee our pumps the equal in quality and capacity of any. Live agents wanted. Write for circular and prices.

PEERLESS IRON WORKS, Sacramento, Cal. Mention Rural Press.

R. N. BURGESS COMPANY

have for sale
the pick of all
Mount Diablo Country
Lands.
If you will go into
the history of the
purchase of the tracts
that are now on the
market, you will under-
stand just what is
meant.

**TOWN LOTS
HOME SITES**

RANCHES—LARGE AND SMALL
in the

MORAGA, CLAYTON AND SAN RAMON
VALLEYS

and the towns of
**LAFAYETTE, WALNUT CREEK, CON-
CORD.**

LAFAYETTE HOME SITES

In the Mount Diablo Country
Were created for the man of family, who
is tired of "two by four," city life; for
the man who believes and knows that
wholesome country life offers financial
advantages as well as a beautiful and en-
joyable environment.

EASY COMMUTING DISTANCE

You can reach San Francisco or Oakland
from the heart of the Mount Diablo
Country in less than an hour, over the
High Line Scenic route of the Oakland
& Antioch Electric Railway. No crowd-
ing or strap hanging.

THE CLIMATE

There are no fogs and no frosts at La-
fayette Home Sites. Fruits, vegetables,
nuts,—everything thrives in this wonder-
ful climate. Poultry finds here ideal con-
ditions. The Valley possesses points of
advantage found nowhere else in the
state. There are no disadvantages such
as lack of rain, hot winds or frosts.

YOUR CHANCE

In addition to the advantages and pleas-
ures of country life, consider this.

Lafayette Home Sites are nearer San
Francisco than are many Berkeley and
Oakland subdivisions that have been sold
at an average price of \$2,000.00 for a
50-foot lot.

\$300.00 to \$800.00 will buy a beautiful
homesite on gently rolling ground over-
looking the Moraga Valley, and your
homesite will be a lot the size of 10 to
20 city lots of 50-foot frontage.

R. N. BURGESS CO.,

734 Market St., San Francisco.

Branch Offices: 1538 Broadway, Oakland.

Walnut Creek—Concord.

1914. E. J. Talbot is president; W. H.
Ingram, Furitvale, secretary-treasurer;
and H. S. Harding, show superintendent.

The Sebastopol branch of the Poultry-
men's Protective Association completed
organization Tuesday.

Local egg houses in Sonoma county
have increased their prices from a cent
and a half to one cent below the San
Francisco quotation. The prices for No.
2 eggs will remain two cents under the
selected pullets quotation.

Miscellaneous.

The Alameda Sugar Co. has stopped
work on the sugar factory at Meridian
for fear of unfavorable tariff legislation.

It has been decided not to move the
Chico alfalfa mill to a point nearer the
Sacramento as was proposed. It will start
grinding in June.

The Railroad Commission has granted
the railroads the right to raise the mini-
mum on car lots of alfalfa to 12 tons
when loaded in cars over 40 feet in length
up to 50 feet in length, inside measure-
ment.

The Williams Land Co. will plant out
640 acres on the Gauthier ranch to al-
falfa, water being secured by pumping.

The U. S. Department of Agriculture
reports winter wheat for the whole coun-
try to score 91.6 in condition, for April
1, 1913, in comparison with 80.6 for 1912
and 86.3 for a ten-year average. Cali-
fornia was reported at 72, in place of
91 normal.

J. K. Fraser, the well known Duroc
Jerseybreeder of Denair, reports the fol-
lowing sales for the last two weeks:
Two sows and litter of pigs to the Rease
estate of San Francisco; one boar to S.
G. Simons, Turlock; one boar to Otto
Rodman, Denair. Mr. Fraser is begin-
ning to fix his show stock for the State
Fair and expects to take his share of the
blue ribbons, one pen, with three sows
and a boar, being exceptionally fine
specimens of the red hog.

WHAT YOU WANT IS LAND THAT MAKES MONEY.

Rivergarden Farms

Farmers call this sediment soil—river bottom land. That is just
what it is. It is so deep, rich, fertile and productive that it soon pays
for itself. It is close to Woodland and Sacramento, at the lower end of
the Sacramento Valley, where the trade winds from the ocean temper the
summer climate; where you can work out of doors every day in the year.

ALFALFA

Where alfalfa grows the dairy goes. Here is good profit for the
dairyman. River and rail transportation. Low freight rates and the
biggest markets in the State nearby.

Ask us about Rivergarden Farms and the easy terms.

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23 L Montgomery Street

San Francisco

THIS FENCE

IS

Strong

Because it is made of large,
high carbon self-regulating
coil spring steel wires.

Durable

Because it is double gal-
vanized and securely
locked.

Cheap

Because it is sold by actual
weight at **DIRECT FACTORY**
PRICES.

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Every Rod fully Guaranteed

Contracts
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Write us for Catalogue and Prices.

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REDWOOD TANKS

I deal direct with the consumer. If
I had agents to sell my product it
would mean that I must add to my price as much as the agents' com-
mission would be. My lumber is bought direct from the forest.
Latest improved machinery. Up-to-date methods. Redwood Tanks,
Picking Boxes, Peach Boxes, Drying Trays, Egg Cases. A tank 5 ft.
diameter, 2 1/2 ft. deep, \$7.50. A tank 6 ft. diameter, 2 1/2 ft. deep,
\$10.50. Large stock of tanks of various sizes in stock. Anything
made to order on short notice. Spraying tanks. Grape stakes.

R. F. WILSON, 447 W. Main St., Stockton, Cal.

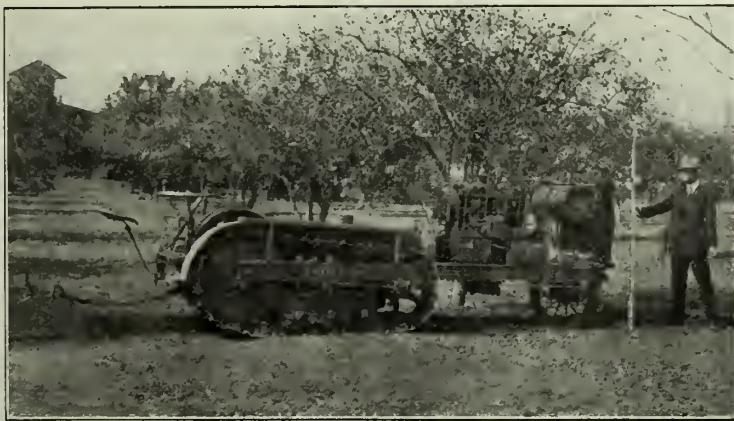
PLOW YOUR ORCHARD DEEPER AND CULTIVATE IT CHEAPER

You need a power that will work each and every day that work
is necessary. One that is not subject to the vagaries of the weather
or the condition of the ground.

Round wheel engines have al-
ways been weak in the point of
traction. The chief objection to trac-
tors has been that the wheels would
slip and stick in the mud and lose
traction on soft soil.

If you have a knowledge of trac-
tors you KNOW this to be true.

Yet how many tractor manufac-
turers have made an earnest attempt
to improve this greatest of all weak-
nesses?



Baby Caterpillar working in orchard. Turns in its own length.

Only one and the Caterpillar is the result of that successful effort.
Round wheel engine manufacturers today base their claims for
superiority on a new type of carbu-
retor, a new valve in the motor or a
new frame construction.

All tractors nowadays should
have a good motor and a good frame.

If they haven't, the manufacturer
is careless or too "economical."

Good motors can be bought by
anyone in the open market.

The traction, the supreme weak
point of the wheel engine, has been
overlooked by them.

TURNS IN ITS
OWN LENGTH.

CATERPILLAR

WILL NOT BARK
THE TREES.

REG. U. S. PAT. OFF.

The Holt Manufacturing Co., Inc.

STOCKTON, CALIFORNIA

COUPON

The Holt Manufacturing Company, Inc.
Stockton, Cal.

Please send me literature describing the
Caterpillar Gas Tractor and showing pic-
tures of the machine in operation.

Name

Address

I farm..... acres of land.

The Home Circle.

Pure Water for the Home.

The following article is furnished by Dr. Alvah H. Doty of the Employees Fund Committee of three large electrical concerns, and the paragraphs used are of immediate importance to farmers:

The ocean, which covers more than three-fifths of the surface of the globe, is the natural source of our water-supply. From it arises a continuous stream of vapor to the atmosphere to be recondensed and precipitated in the form of rain and snow. The far greater portion of this returns to the ocean. The part falling on land either forms rivers, lakes or pools, or penetrates the earth and becomes the great underground water system upon which we so largely depend for drinking purposes. It is both interesting and important to know something of the course taken by the water after entering the ground and the combinations it forms as it descends.

A section of the earth extending downward for a considerable depth would show the soil arranged in various layers or strata. The significance of this, so far as it indicates the formation and age of the earth, is well known to geologists.

The layers referred to are variously composed of sand, gravel, chalk, clay, etc. Some of them, for instance clay, are practically impermeable; that is, water cannot pass through them; while, on the other hand, sand is easily penetrated. Therefore, water in its descent passes without difficulty through the latter substance, and upon reaching a layer of clay or some other impermeable stratum, is directed along it until it finds an exit somewhere, probably in the form of a spring, or as a supply to some body of water, or it may remain below until an outlet is made for it in the form of a well.

The strata are not uniformly arranged, and are at various levels and frequently curved. Sometimes forming large underground basins. As a result, water upon entering the earth may reach impermeable strata at different depths, and supply either superficial or deep wells.

Various forms of contamination are carried into the ground by the surface water. Many of these are filtered out by the soil, some are destroyed by oxidation, and some by certain forms of bacteria which live upon organic matter. For this reason water becomes purer as it goes further down, and we may expect to find a better and safer supply in a deep well than in a superficial one.

Certain gases confined in the earth may sometimes force underground waters to the surface, although this is usually brought about by the pressure of the water from behind in its effort to reach its own level, for this supply frequently has its origin in mountainous regions, or where there is considerable elevation, and may follow along impermeable strata, sometimes at a considerable depth, and appear at the surface through natural or artificial means many miles away.

During the transit of water through the earth certain chemical changes take place. The soil is rich in carbonic acid, and the underground water holding this gas in solution dissolves out various mineral substances contained in the strata with which it comes in contact. In some instances the presence of these salts is so pronounced that the water is rendered unfit for general use, although in this state it is often valuable for medicinal purposes.

The most frequent combination is with lime and magnesia, particularly the former. When a comparatively large amount of it is present the water becomes "hard," that is, the lime or magnesia combines with the fatty acids of soap and prevents

the prompt formation of lather; therefore "hard" water is neither satisfactory nor economical for bathing or other domestic purposes. While there is practically no danger in drinking it, it may not be as acceptable as some other kind. Water which contains but little or no lime is called "soft," and is far better and pleasanter for general use. Not infrequently heated water, which probably has its origin deep in the earth, reaches the surface and forms what are commonly known as "hot springs."

If it were possible to collect rain water above the point of contamination in the air it would be the purest and softest supply we could obtain, but as it falls to the ground some form of pollution always takes place, for it washes out the air. In the country it is comparatively small and does not materially affect its value, but in cities and manufacturing towns where the air is constantly charged with poisonous gases, the products of offensive trades, and the usual contamination of these places, rain water, unless purified, becomes unfit for drinking purposes.

Rain-water barrels, which are commonly found outside the house in the country, are usually unsanitary, as well as defective, besides being common breeding places for the mosquito, for as a rule they are not properly covered. This will also occur in underground cisterns, therefore the openings of these receptacles should be protected by wire netting.

Spring water in the country is valuable for drinking purposes provided inspection indicates that it is practically free from contamination. It is usually cold and sparkling, besides receptacles are not needed for its storage. Spring water should be protected against contamination at its exit by stone or cement walls and floors. In addition, a pipe may be introduced into the opening, not only for protection, but more effectively to direct the water to its exit.

River water used by large communities for drinking purposes is generally filtered. Briefly speaking, the method usually employed consists in passing the water over filter beds, which are composed of three or four feet of gravel, on top of which is a layer of fine sand of about the same depth. Impurities are removed as the water passes down through these permeable layers to its destination. Still, this system is open to various objections, and cannot be compared with water obtained from other sources some distance away. The ancient Romans were aware of this, for although the Tiber runs through the city, the water-supply was brought from distant sources by aqueducts so splendidly constructed that some portions are still in use.

Well water is a common source of supply in the country, and like spring water, is cool and pleasant to drink. Unfortunately, wells are frequently contaminated and often transmit infectious material. This refers particularly to typhoid fever and partly explains why this disease is more or less always present in rural districts.

Deep wells are less dangerous in this respect than superficial ones, for the water is usually drawn from below an impermeable stratum, while this does not usually occur in a superficial one. However, defective construction will allow surface impurities to reach the interior of deep wells through their walls. Artesian wells constitute an exception to this, for they are bored frequently to a depth of many hundreds of feet to reach below or between impermeable strata where water is held under pressure and which escapes to the surface through a continuous tube or pipe which, if properly constructed, admits of but little danger of contamination.

The need of protection about the opening of ordinary wells and the space im-

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Save from 25 to 75c per pound

Our Absolutely Air Tight Tins Retain the Fragrance.

English Breakfast or Black Teas.

"Dalnuy Blend" 75c per pound

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Uncolored Japan Tea—"Sa-sa-ma," 60c per pound.

THE ASIATIC PRODUCTS CO.

COLOMBO, FOOCHEW, YOKOHAMA

AMERICAN OFFICE, 244 CALIFORNIA ST., SAN FRANCISCO



TEA

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Prices:	16-oz.	15-oz.
San Francisco prices for 16-oz. full weight packages	50c 60c 75c \$1.00	Parcel Post prices for 15 oz. packages
		47c 54c 70c 94c

Flavors: Basket-fired Japan; Ceylon; Formosa Oolong; English Breakfast (Black); Family Mixed (black and green).

The cost of the sixteenth ounce is subtracted from the San Francisco prices to allow for the weight of the wrapping. The postage is at our expense.

Save money. Buy direct from the importer. Get quality.

For fifty years we have been importing superior teas for our fine trade. Goldberg, Bowen & Co.'s name on the package as the importer is a guaranty of purity as well as quality. To create a nation-wide distribution we offer fine teas by parcel post, prepaid. New crop, selected teas, parcel post packages, 15 ounces of tea, postage paid. (Select by flavor.)

GOLDBERG, BOWEN & CO., San Francisco

Ask for Catalogue

mediately surrounding them is often a fruitful source of contamination. The old oaken bucket system, which required that the well shall be freely open, is anything but sanitary. In its place a modern pumping apparatus should be used, so that the opening can be properly closed and protected. Besides, the space surrounding the opening of the well should, for a distance of a few feet at least, be graded and cemented from the well outward and downward, and for ten or fifteen feet down the walls of the well should be constructed with brick or stone and cement. A layer of clay on the outside of the well renders it still more safe.

Wells become contaminated and receive infectious matter usually from nearby privy vaults and outhouses, cesspools, etc., through the soil to the underground water which supplies the well. Therefore, in addition to proper construction, a well should not only be placed at the highest practical point, but should be as far as possible from all sources of contamination. The distance cannot be accurately determined, for it depends largely upon the arrangement of the underground strata. However, a careful study of the situation along the lines already referred to should secure sufficient information to place the well fairly out of harm's way.

The presence of infectious contamination is not indicated by the appearance of the water, for the clearest and coolest specimens may contain germs of disease.

Water, next to air, is most necessary to our existence. It plays an exceedingly important part in maintaining the various functions of the body. It is constantly needed to make up for the loss of moisture from the skin and lungs, and it flushes out certain organs and also preserves the shape and symmetry of the body.

The importance of water in the preservation of health is far from being ap-

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BOYS

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preciated, and but few persons drink enough of it. This lack of fluid may lead to unpleasant conditions, such as indigestion, torpidity, headache, dryness of the skin, etc., the cause of which is not usually understood.

It is estimated that the adult human being needs two to three quarts of water in twenty-four hours. Probably one-third of this is usually taken in with the food. In addition, four or five glasses of water a day under ordinary conditions would be a fair estimate of what the system requires, although it is subject to great changes, depending largely upon exercise and climatic conditions, for during the warm weather the skin rapidly abstracts large quantities of water from the system, which needs to be promptly replaced. Contrary to the general belief, there is no objection to drinking a reasonable amount of water with the meals, although it should not be confined to this time but distributed more evenly throughout the day.

When there is reason to believe that water contains infectious contamination, there is but one way to render it safe for drinking purposes, provided no other supply can be obtained, and that is by boiling. Simply heating the water to the boiling point is not sufficient for this purpose, for it must be continuously boiled for fifteen minutes in order that all germs which may be present are destroyed. The water should then be cooled and protected against further contamination. In no instance where the water is believed to be infected should either the so-called domestic filters or agents advertised to purify the water be substituted for boiled water, for they cannot be depended upon to protect, and are often worse than useless.

Serving Cold Meat.

A joint sent from the table should at once be placed on a clean dish, not only that it may look nicer when re-served, but that it may keep better. If the gravy is left about it, in warm weather

especially, it will sour very quickly. Any gravy left over should be most carefully strained for use, all the floating fat removed, and added to the fat reserved for kitchen purposes generally. Remember that just as fat spoils gravy, so does gravy spoil fat. When the joint is next sent to the table, some little garnish should be added for the simplest of meals. The everyday sprig of parsley or a bunch of cress is generally obtainable, and always imparts a fresh, appetizing appearance. If the joint be much disfigured or cut down low, the cut part, too, should be garnished. When required for one or two people only, or if the meat be cut down to the bone, a few slices of neat and even as circumstances permit will present a better appearance than the joint itself. They should be served on a small dish and suitably ornamented.

Beef is best embellished with a few little pieces of grated horseradish and sprigs of parsley.

Veal requires cut lemons, as well as something green.

Mutton, for ordinary occasions, only requires a garnish of parsley, though savory eggs of various kinds go well with it and are an improvement to the dish. The same can be said of veal.

Ham and tongue, when getting low, should be sliced thinly, then rolled to look neat and laid on a dish alternately with a morsel of parsley between each little roll, and if a few hard-boiled eggs can be added, or even a few slices or quarters, the dish is quite transformed.

Pork requires some piquant accompaniment; ordinary store sauce should go to table with it, and many of the sold sauces in this work are very good. Some plain, green salad should be put about the dish, and various sorts of chutney and sweet pickles will tend to counteract its richness.

Uneasy Passenger (on an ocean steamship)—Doesn't the vessel tip frightfully?

Dignified Steward—The vessel, mum, is trying to set a good hexample to the passengers.—Chicago Tribune.



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THE MARKETS.

San Francisco, April 16, 1913.

(Unless otherwise noted, quotations represent prices paid to the growers.)

Cereals.

WHEAT.

The wheat market here has been overshadowed by the interest in barley. The Eastern market is very dull, and this has offset any local tendency for an advance. Prices are as last quoted.

California Club, ctl.,.....	\$157½@1.60
Forty-fold	1.60 @1.65
Northern Club	1.57½@1.60
Northern Bluestem	1.65 @1.70
Northern Red	1.57½@1.72½

BARLEY.

There has been a lot of speculative activity in future barley, both new and old crop futures being affected. This speculation, combined with a feeling that the crop will be light, has led to an advance in spot. Common feed, in which nothing has been doing for some time, is again selling.

Brewing and Shipping...	Nominal
Choice Feed, per ctl.,.....	\$1.40 @1.42½
Common Feed	1.35 @1.40

OATS.

There has been some speculative selling of oats for future delivery; but this does not seem to have been reflected in the spot market. White oats have been marked up slightly, but red are very dull.

Red Feed	\$1.65 @1.85
Seed	2.00 @2.10
Gray	Nominal
White	1.60 @1.62½

CORN.

There has been but little movement in corn, and local lines are unchanged. Eastern, in both yellow and white, is held a little firmer on account of the advanced market in the East.

Cal. Yellow	\$1.45
Eastern Yellow	\$1.55 @1.60½
Eastern White	1.60 @1.65
Kaffir	1.50 @1.55
Egyptian	1.70

RYE.

Rye has been largely neglected, with only a small amount offered and a still smaller demand. Prices are unchanged.

Rye, per ctl.,.....	\$1.40 @1.45
---------------------	--------------

BEANS.

The bean market continues dull in almost all grades, with fairly heavy stocks in this city. A little shipping demand has developed for small whites, and both small and large whites are a little firmer and a little higher in price. Limas have been marked down a little, and, though nominally the same, it is said that there has been some shading of quotations on pinks.

Bayos, per ctl.,.....	\$3.25 @3.45
Blackeyes	3.15 @3.25
Cranberry Beans	4.70 @5.00
Horse Beans	2.25 @2.35
Small Whites	4.75 @5.00
Large Whites	4.40 @4.50
Limas	5.35 @5.45
Pea	Nominal
Pink	3.70 @3.90
Red Kidneys	4.00 @4.25
Mexican Red	4.00 @4.20

SEEDS.

The continued firmness in canary seed is the chief feature in the seed market. There is, however, no further advance, and none seems to be anticipated. Millet is easier with some due to arrive. Alfalfa seed continues steady at the old figures. Not much is doing in other lines.

Alfalfa	15 @17 c
Broomcorn seed, per ton....	\$27.00@28.00
Brown Mustard, per lb.,.....	3¾c
Canary	6 @6½c
Hemp	3c
Millet	2¾@3 c
Timothy	Nominal
Yellow Mustard	Nominal

FLOUR.

The flour market is moving along without change. There has been some movement in the way of arrivals from the north. The consuming demand is as before.

Cal. Family Extras.....	\$5.60 @6.00
Bakers' Extras	4.60 5.20
Superfine	3.90 @4.10
Oregon and Washington..	4.90

Hay and Feedstuffs.

HAY.

The hay market here continues firm in the face of heavier receipts, and the outlook is for a continuance of present conditions. Notwithstanding the rains of the past week and the prospect of a slightly larger crop than had been previously counted on, the market has shown more activity this week than last. Contradictory reports are current as to the outlook for the coming crop, and much uncertainty prevails, though the continued firmness and the increased movement indicated that the prevailing belief is for a short crop and relatively high prices throughout the season. Alfalfa is about the strongest item in the list, with a decided jump in the price as compared with last week. The late rains in the growing sections seem to have been unable to check the advance.

No. 1 Wheat, or Wheat and

Oat	\$19.00@22.00
do No. 2	16.00@19.00
Lower grades	13.00@15.50
Tame Oats	15.00@20.00
Wild Oats	13.00@18.50
Alfalfa	13.00@16.00
Stock Hay	9.00@11.00
Straw, per bale.....	35@ 80c

FEEDSTUFFS.

Feedstuffs are firm in general, with some sharp advances in some items. The advance in the price of alfalfa hay and the strength developed in the barley market have both had their effect, and the outlook is for a firm market for some time to come, with further advances probable.

Alfalfa Meal, per ton.....	\$21.00@22.00
Bran, per ton.....	25.00@26.00
Oilcake Meal	34.00@35.00
Cocanut Cake or Meal.....	Nominal
Cracked Corn	33.00@34.00
Middlings	32.00@33.00
Rolled Barley	29.00@30.00
Rolled Oats	34.00@35.00
Shorts	27.00@28.00

Garden Truck.

VEGETABLES.

Asparagus continues to absorb most of the interest in the vegetable market, and in view of the continued heavy arrivals the prices have not dropped very badly. Cannery and the shipping demand have quite generally absorbed the surplus, which on some days has run as high as 6000 boxes. The average price paid for good stock by the cannery has been about 75 cents. Not much interest seems to be taken in onions, though prices are rather firmer. Large shipments of Florida and Mexican tomatoes have just come in, but prices on these are as yet hardly established. The general run of vegetables is lower, owing to increased supplies, the exceptions being celery and cauliflower.

Onions: River, Yellow, ctl.,...	50@ 60c
Oregon, per ctl.,.....	65@ 75c
Australian	4.00@ 4.50
Garlic, per lb.,.....	1¼@ 2c
Tomatoes, per crate.....	Nominal
Cucumbers, per doz.....	75c@ 1.25
Cabbage, per ctl.,.....	30@ 40c
Carrots, per sack.....	75c
Cauliflower, per doz.....	70@ 80c
Celery, crate	1.25@ 1.75
Rhubarb, box	50@ 1.00
Artichokes, doz.....	10@ 25c
Sprouts, lb.,.....	7@ 8c
Green Peppers, lb.....	25@ 30c
Lettuce, crate	50c@ 1.00
Green Peas, lb.,.....	4@ 6c
Asparagus, box	50c@ 1.25

POTATOES.

New potatoes are coming in in increasing quantities, and they are now sold about a cent lower than a week ago. Little interest is being taken in old stock, though a certain amount of business is being done.

River Whites, ctl.,.....	35@ 50c
Salinas, ctl.,.....	75c@1.10
Oregon, ctl.,.....	50@ 65c
Sweet Potatoes	2.50@ 2.75
New Potatoes, lb.,.....	3@ 4c

Dairy Produce.

POULTRY.

Notwithstanding increased receipts from California and about the usual arrivals from the East, the poultry market remains firm on nearly all grades. The California receipts are still running almost entirely to broilers, and these have been sufficient to bring down the price another notch for both large and small. The demand, however, keeps up, and the entire list is reported firm.

Large Broilers, per lb.....	29 @30 c
Small Broilers, per lb.....	30 c
Fryers, per lb.....	25 @27 c
Hens, extra, per lb.....	19 @20 c
Hens, large, per lb.....	18 @19 c
Small Hens, per lb.....	17 @18 c
Old Roosters, per lb.....	10 @12 c
Young Roosters, per lb.....	22 @25 c
Squabs, per doz.....	\$ 3.00@ 3.50
Geese, per pair.....	1.50@ 2.00
Ducks, doz.,	4.00@ 6.00
Turkeys, dressed	22 @24 c

BUTTER.

Under increased receipts, the butter market has receded gradually all week, with a probability of a further drop until a figure is reached which will induce the cold storage men to begin operations. Buying for shipment to the North has so far had a tendency to check a further drop; but it is held that the northern movement will not be able to keep up prices much longer, and another drop is predicted for next week. The storage demand should check the drop very soon, however.

Thurs. Fri. Sat. Mon. Tu. Wed.	
Extras	28 28 27 26 26 26
Prime	
Firsts ..	28 28 — — — —

EGGS.

The egg market is in good shape. There has been a good demand for shipment and for storage, and prices are up half a cent in all grades. Aside from the shipping demand, the situation has shown no notable change.

Thurs. Fri. Sat. Mon. Tu. Wed.	
Extras	19 19 19 19 19 19½
Firsts	18 18 18 18 18 18½
Selected	
Pullets...	17 17 17 17 17 17½

CHEESE.

The cheese market is now getting down to regular spring prices. At present the demand is weak, with all grades quoted lower and not much demand at the new figures. California firsts have now been dropped from the market, as only the best stock is now in demand at all.

Fancy California Flats, per lb.....	12½c
New Young Americas, fancy.....	14 c
Monterey or Jack Cheese.....	15@16c

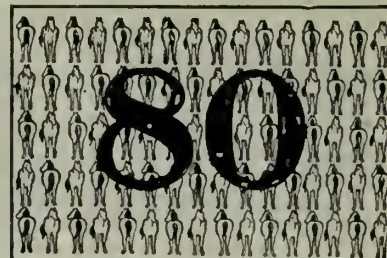
Deciduous Fruit.

Interest in the strawberry arrivals continues, and though strawberries are coming in more freely and more regularly than a week ago, the demand continues and all arrivals are selling freely at good prices. The market is now well enough established to give regular quotations. There is just about enough business being done in apples to keep the market steady. Belleflours are now practically out of the market and have been dropped from the list.

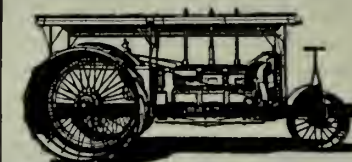
Strawberries, crate	\$ 2.00@ 2.25
Longworth, drawer	1.00@ 1.15
Other varieties, drawer...	60@ 90c
Apples: Fancy Red, box....	65c@1.00
Newtown Pippins, ¾ to 4-tier	75c@ 1.35
Northern Spitzenberg.....	1.25@ 1.50

Dried Fruits.

There is really nothing doing in the dried fruit market, though the general tone is firmer than earlier in the season. The demand for California raisins and prunes from the East is light, though stocks in the larger Eastern centers are smaller than usual at this time of the year. The uncertainty as to the size of the coming fruit crops in this State and the general belief that most crops will be short, has a tendency to make holders of dried fruits a little firmer in their ideas as to prices. In its review of the situation in the East, the New York Journal of Commerce says: "The spot market for raisins seems to be getting more into line with the improved conditions on the Coast which have resulted from the activities of the Associated Raisin Co. While it is said to be possible still to buy fancy 1912 crop seeded on the spot at 5¼c, a number of sellers have raised their quotation on that grade to 6c and have pegged it there for a time. The choice seeded raisins are not, it would appear, in as large supply as fancy, the relatively low prices at which they have been offered to the consuming trade having resulted in a larger movement in them than in fancy, according to current report. It is reported that sales of choice in carload lots were made at the end of last week at 4¼c, but several holders were asking 5c for that grade at the close. California loose raisins are inactive. Some offerings of loose Muscatels



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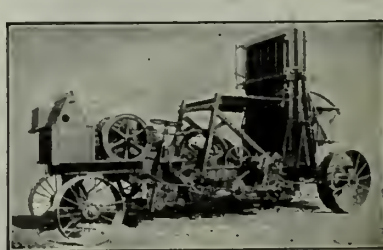
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have sold at 4¼@4½c for 3 crowns, but the demand was light. Thompson's Seedless and Sultanas are dull, but as the supply of bleached is small and the unbleached do not seem to be in large stock, the tone is firm. However, as there is little demand at present, the market shows no appreciable change. Imported raisins are dull, but as supplies are limited the tone is firm. There was still a fair jobbing demand for large California prunes on the spot and a little more interest seems to have developed of late in small sizes, but the intermediate counts get little attention and are rather easy, while the market for the other sizes is steady to firm. No inquiry for Eastern buyers is reported for shipments of any size from the Coast for prompt or forward delivery, but holders out there are not trying to force sales and offer no price concessions on the more popular counts.

Evap. Apples, per lb.....	3@ 4c
Apricots	Nominal
Figs: White	Nominal
Black	Nominal
Calimyrna	Nominal
Prunes: 4-size basis.....	2¼@ 4 c
(Premium: 1c for 40s-50s; 2c for 30s-40s.)	
Peaches	3½@ 4½c
Pears	4 @ 7 c
Raisins—	
Loose Muscatels in sweatbox	2½@ 2¾c
Thompson's Seedless.....	5 c
Seedless Sultanas	3 @ 3½c

Citrus Fruits.

The Eastern markets for navel oranges continue in excellent shape, and prices will probably be maintained the balance of the season. The average prices being received on the New York auction run from \$2.65 to \$4.80 per box, Boston, Philadelphia, and other points being fully as good as New York.

Lemons are a trifle lower, owing to heavy foreign receipts, and along the Atlantic Coast prices for California lemons are kept down in sympathy. In the Middle States, however, prices are better.

Lemon shipments from California are still light, being only about nine or ten cars daily. Oranges are going East at the rate of over 60 cars daily. Shipments to date are only about half what they were last year at this time, of both oranges and lemons.

In the San Francisco market there has been little change in the orange situation, notwithstanding the fact that shipping points in the South report very light stocks left on hand. Grapefruit has been marked up a dollar for the best grade. Lemons and limes are somewhat demoralized owing to recent heavy arrivals of limes from Mexico. Both lemons and limes are quoted lower, with no very marked demand for lemons even at the lower figures.

Oranges, per box—	
Navels, good to fancy....	\$ 2.50@ 4.00
Grapefruit, seedless	2.50@ 6.00
Lemons: Fancy	6.50
Choice	5.00@ 6.00
Lemonettes	4.00@ 4.50
Limes	5.00@ 6.00

Nuts, Honey, Hops, Etc.

NUTS.

The crop outlook is still uncertain. It is known that there will be some shortage in softshell almonds, but definite information as to the amount of this shortage is still lacking.

Almonds—	
Nonpareils	17½c
I X L	16½c
Ne Plus Ultra.....	15½c
Drakes	12½c
Languedoc	11½c
Hardshells	8 c
Walnuts, 1912 crop—	
Softshell No. 1.....	16 @16½c
Hardshell No. 1.....	15 @15½c
No. 2	10½c
Budded	17 c

HONEY.

The honey market shows no change as to quotations. The demand is still for the lighter grades, but as very little is coming in of any sort, there is no weakness even in the darker sorts.

Comb, white	15 @16 c
Amber	11 @12 c
Dark	9 @10 c
Extracted, white	8 @10 c
Amber	6½@ 7 c
Off Grades	5 @ 6 c

BEEWAX.

The wax market is now well cleaned up, and there will be little doing for some time. Nothing is coming in in

either light or dark. Light wax has been marked down a little, but as there is practically no movement, this has no significance.

Light	29 @31 c
Dark	26 @28 c

HOPS.

There is now very little doing in hops. Only about 5000 bales of the 1912 crop is left in the hands of the growers, and the movement in this is almost nothing. A few sales of 1913 future hops have been made, but as yet the coming crop has attracted little attention.

1912 crop	12½@18 c
1913 contracts	13 @15 c

Live Stock.

Steers, cows, and heifers, in both No. 1 and No. 2 grades, have been marked up this week. Other live stock show no change. The releasing by the health authorities of the Australian shipment of dressed meat seems to have had no effect on the local market, as all sorts are quoted the same. Range conditions in the San Joaquin valley are reported improved by the recent rains.

Steers: No. 1	7½@ 7¾c
No. 2	7 @ 7¼c
Cows and Heifers: No. 1....	6½@ 6¾c
No. 2	5¾@ 6¼c
Bulls and Stags.....	2½@ 4½c
Calves: Light	7½@ 8 c
Medium	7 @ 7½c
Heavy	5½@ 6 c
Hogs: Grain-fed, heavy.....	8¼ 8½c
150 to 250 lbs.....	8¾@ 9 c
100 to 150 lbs.....	8½@ 8¾c
Prime Wethers	6 @ 6¼c
Ewes	5 @ 5¼c
Lambs: Suckling	7 @ 7½c

DRESSED MEATS.

Steers	11½@12 c
Heifers	11 @11½c
Veal, large	10 @11 c
Small	12 @13 c
Yearlings	12 @12½c
Mutton: Wethers	11½@12 c
Ewes	10 @10½c
Suckling Lambs.....	15 @16 c
Dressed Hogs	12½@13 c

WOOL.

Wool men are still holding off awaiting developments. Locally there is nothing doing. A few of the best clips have been sold in the country, but buying is not general. Reports from the East show a quiet market.

Spring clip:	
Southern mountain, free..	9 @12 c
Northern, year's staple....	16 @18 c

HIDES.

Hides are just about steady throughout the list. Sheepskins continue a little weak. Arrivals are not large, but sufficient for the demand.

Heavy Steers, over 56 lbs.	14 c
Medium	13 c
Light Steers, under 48 lbs.	12 @13 c
Heavy Cows, over 50 lbs..	12 @13 c
Light Cows, 30 to 50 lbs..	13½c
Kip	14 @15½c
Veal	17 @18½c
Calf	17 @18½c
Dry—	
Dry Hides	24 @25 c
Dry Kip, 10 to 15.....	24 @25 c
Dry Veal, 5 to 10.....	29 c
Dry Calf, 7 down.....	29 c
Horse Hides—	
Salt: Large	\$2.25
Medium	1.75
Small	75c
Colts	25@ 50c
Dry	75c@ 2.00
Sheep Skins—	
Long Wools	\$ 0.85@ 1.25
Medium Wool, 6 to 9 mos..	60@ 90c

HORSES.

Recent sales have been a little mixed as to the prices realized, these being determined, apparently, more by the particular needs of the buyers than by the real value of the offerings. Nevertheless, some little interest has been taken. During the next few days some young mountain horses and a considerable shipment of heavy drafters from Idaho will be offered in the local market, and these are expected to attract considerable attention.

Heavy drafters, 1700 lbs. and over	\$300@350
Light Drafters, 1500 to 1650...	250@285
Chunks, 1350 to 1500 lbs.....	200@250
Wagon Horses, 1250 to 1350...	180@225
Delivery Horses, 1050 to 1250..	125@150
Desirable Farm Mares.....	100@125

MULES.

1200 lbs.	\$200@250
1100 lbs.	150@200
1000 lbs.	125@175
900 lbs.	75@125

PUBLISHER'S DEPARTMENT.

"Co-operation in Agriculture," by Henry W. Wolff, published by P. S. King & Son, Orchard House, Westminster, London, is a new book of interest to those interested in studying the fundamentals of co-operation in agriculture. The table of contents indicates the scope of the work: General principles, co-operative supply of goods, disposal of produce, of milk, eggs and poultry, grain, live stock; co-operative insurance and credit, also co-operation in work, use of machinery, tenure of land, education, etc. The price of the book in London is six shillings, which means, we suppose, that it will cost about \$2 here, including duty and postage.

The new parcels post law is destined to make many changes in marketing both products of the farm and from the factories. It will be well for every reader of the PACIFIC RURAL PRESS to familiarize himself with this new distributing force, that advantage may be taken of it at times, both in buying and selling. As a direct result of the parcels post system, we print in the Home Circle department this week three advertisements of good mercantile houses who wish to build up mail order trade. Two of these announcements relate to tea and the other to chocolate, and the firms back of them are strong and reliable. Take advantage of these offers and get your full money's worth when you purchase.

The demand for surface irrigation pipe in the central and northern part of the State has increased to such an extent that it has given rise to the establishment of another manufacturing industry in this line. The Robinson Hardware Co. of Gilroy, California, has built and equipped a modern factory for the manufacture of this pipe, and is now working to capacity filling orders. H. E. Robinson, of this firm, went East last fall and had especially made a complete set of the heaviest modern machines, and stocked up heavily on galvanized iron, and promises to turn out a superior quality of pipe, laying stress upon the smoothness

and carefulness with which the pipe will be finished.

FENN'S ADJUSTABLE POST HOLE AUGER



is sold on our positive guarantee that it will dig faster in all kinds of ground than any other post hole tool, auger or digger, and twice as fast in very heavy clay, gumbo, adobe or hardpan. If your dealer does not sell the Fenn, WRITE us for descriptive matter and prices.

A real labor saver.

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LIGHTNING HAY PRESSES



The Old Reliable Steel Pitman Hay Presses.

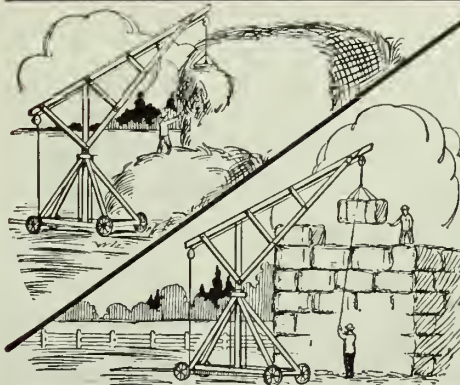
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THE SCHMEISER PORTABLE AUTOMATIC DERRICK



The Best
Way to Handle
Loose or Baled Hay

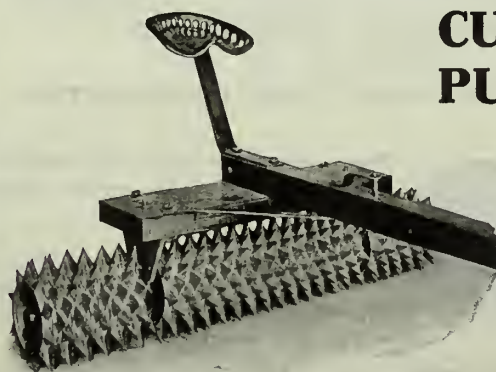
This derrick is used by all modern farmers and will handle loose or baled hay in the easiest, quickest and most economical manner known. It is always ready, is portable and can be moved about as easily as a farm wagon. Has great lifting capacity, and is invaluable for hoisting machinery, timbers or heavy loads of any kind.

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and we will tell you all about this derrick—what it can do and how it can save you money.

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It is the only clod crusher on the market that will do the work thoroughly and scientifically for the Farmer, Orchardist, Nurseryman or Gardener. Made in many sizes. Write for further information.

L. CUNNINGHAM,
Morgan Hill, Cal.

Ship your **POULTRY, EGGS, HONEY, DRIED FRUIT, RAISINS, NUTS, DRESSED CALVES**, and Produce of all kinds to the old Reliable firm of **W. C. PRICE & CO., 211, 213, 215 Clay St., San Francisco, Cal.**

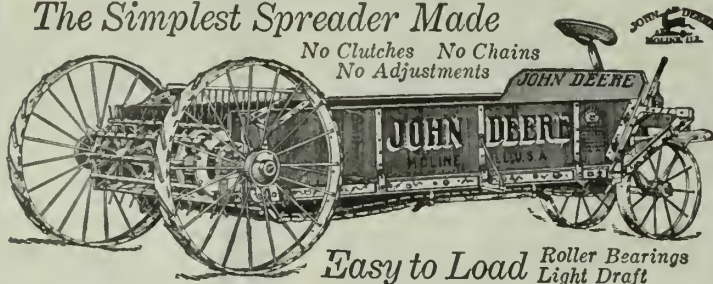
Highest market prices and immediate cash returns guaranteed. Liberal advance made on all shipments. Consignments and correspondence solicited. Write us before shipping elsewhere.

John Deere Spreader

The Spreader with the Beater on the Axle

The Simplest Spreader Made

No Clutches No Chains
No Adjustments



Easy to Load Roller Bearings
Light Draft

Decided Improvement in
Spreader Construction

Up to this time every spreader on the market has been constructed along the same general lines.

The John Deere Spreader, however, is different. It is entirely new and there is nothing else like it on the market.

All the working parts are mounted on the main axle. There are no strains and stresses on the sides or frame and no clutches or chains to give trouble.

The John Deere Spreader is low down, easy to load, very simple, and always ready for business. It cannot get out of order.

Beater on Axle

All the working parts on the John Deere Spreader are mounted on the rear axle. There are no independent studs or shafts to give trouble, nor chains or sets of gears to get out of order. All strains and stresses are borne by the main axle and are not transmitted to the side of the box or the frame of the spreader.

Power to drive the beater is taken from the rear axle and operates through a planetary transmission (similar to that used on automobiles) mounted on the rear axle within the beater.

Light Draft—Few Parts

There are at least two reasons why the John Deere Spreader is the lightest draft spreader made. One is that it has four sets of roller bearings; two in the front wheels and two on the main axle and beater. They reduce the draft materially.

Another reason is that the John Deere Spreader has so few parts. It has about 150 less types of castings than the simplest spreader heretofore made. It is only natural that the fewer parts a machine has, the easier it will operate.

When the John Deere Spreader is out of gear, it is simply a wagon.

Easy to Load

The first three feet manure is lifted with an ordinary spreader are easiest of all. The real hard work is from this height to the top of the ordinary spreader.

The John Deere Spreader is low down. It is only necessary to lift each forkful

Even if You Don't Need a New Spreader Now, Come in and See It.

JOHN DEERE PLOW CO., SAN FRANCISCO

three feet. Thus, the hard work of loading a manure spreader is done away with. Besides, the person doing the loading can see inside the spreader at all times. Each forkful is placed exactly where it is needed.



Easy to Load

No Adjustments

On the John Deere Spreader no adjustments are necessary. On the simplest spreader heretofore made, it was always necessary to make from ten to twenty adjustments before the machine would work at all.

John Deere Spreader is thrown in gear by moving a heavy dog back until it engages a stop at the rear of the machine. No clutch used.

Positive Non-Racing Apron
By the use of a very simple locking device inside the ratchet feed, the apron is positively locked against racing when spreading up hill or over exceedingly rough ground. The result is that when spreading with the John Deere Spreader the manure is always spread evenly. This is not possible on any other ratchet feed spreader made.

Change of Feed

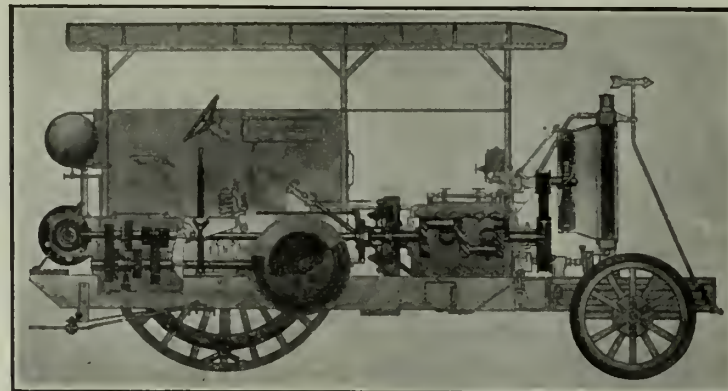
Change of feed is accomplished by a double shoe which is moved from the seat. This shoe determines the number of teeth the ratchets engage at each stroke. The John Deere Spreader has a variation of from five to twenty-five loads to the acre.

Substantial Steel Frame, Like the Modern Railway Bridge

Both the side sills in the John Deere Spreader are of high carbon channel steel with the channels turned to the inside. Into these hollows are fitted four large wooden cross sills. Being bolted, these cross sills can be kept tight, insuring rigidity and alignment of frame at all times.



Built Like a Steel Bridge



Are You A Real Up-To-The-Minute Business Farmer?

or are you sticking to the traditions of your forefathers and using muscle instead of brain? Brain in farming means using the most modern and economical implements obtainable. And speaking of economy, don't confuse an investment with an expenditure. What kind of power do you use? Let us tell you about the

Ajax Gas Tractor

You feed it only when it's working. And when it does eat its appetite is small. Write us today and we'll tell you why and how the Ajax is the most economical power obtainable. It is fully guaranteed.

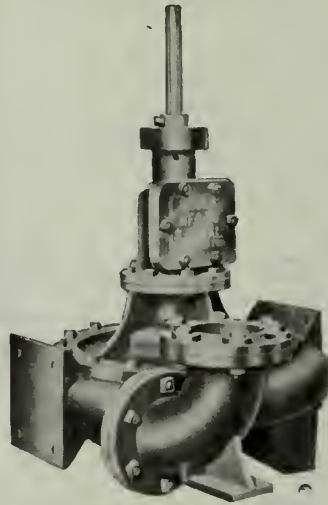
Write Us NOW

PIERSON, HEAD & COMPANY

37 CALIFORNIA ST.

SAN FRANCISCO

KROGH'S NEW VERTICAL PUMP



Krogh New Vertical Water Balanced Pump

The Krogh New Water Balanced Vertical Pump contains many new and valuable improvements, same being fully explained in our Bulletin R-10, which will be mailed upon request.

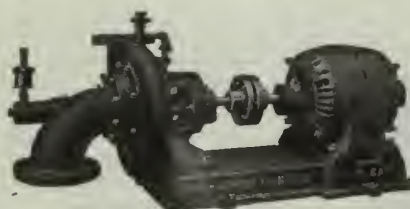
We have a branch in Los Angeles at 206 N. Los Angeles Street.

The pump can be seen in operation at our place of business.

KROGH MANUFACTURING COMPANY
149 BEALE ST., SAN FRANCISCO

Jackson Direct Connected Centrifugal Pumps

EMBODY ALL THE LATEST IDEAS IN PUMP CONSTRUCTION.



Patented.

Jackson "1912" Direct Connected Pump.

This is the result of years of specialization, designing and testing along scientific lines.

The "1912" Jackson Balancing Device is a valuable feature which operates automatically and permits the pump to be run with practically no attention.

Write for our Catalog No. 47, which describes all the special features of this pump.

BYRON JACKSON IRON WORKS

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Los Angeles, 212 N. Los Angeles St.

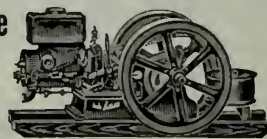
Works, West Berkeley, Cal.

Waterloo-Boy Hopper-Cooled Gasoline Engine

1, 2, 4, 6, 8 and 12 HORSE-POWER

MATERIAL, WORKMANSHIP AND POWER ABSOLUTELY GUARANTEED

THE WATERLOO-BOY is positively the best engine for running machinery such as feed cutters, grinders, grindstones, cream separators, washing machines, churns, sheep-shearing machines, lathes, drill presses, pumps for irrigation purpose, etc., etc. Further information free on request.



FREE CATALOG—A catalog containing valuable information about stationary engines of every description, their design, construction, care and operation. This catalog tells you—shows you—in clear, easily understood and concise language, all about our line of superior gasoline and distillate engines. You will want this catalog if you are interested in windmills, tanks, pipe fittings, pumps, etc. Write for it today—NOW. Our money back guarantee is your protection.

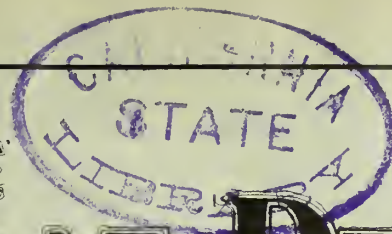
THE NATIONAL CENTRIFUGAL PUMP With Ring Oiler Bearings, Elbow, Two Bearings, Large Throat.

There is nothing more simple or easier than running a "NATIONAL."

Illustration shows a new centrifugal pump which we have had built to our own specifications. This pump has many features not found in other pumps of this type.

Only the best materials enter into the construction—thoroughly tested and inspected before being shipped—fully guaranteed.

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THE PACIFIC RURAL PRESS

Vol. LXXXV. No. 17.

SAN FRANCISCO, SATURDAY, APRIL 26, 1913.

Forty-Third Year.

OUT IN THE WORLD.

[BY THE EDITOR.]

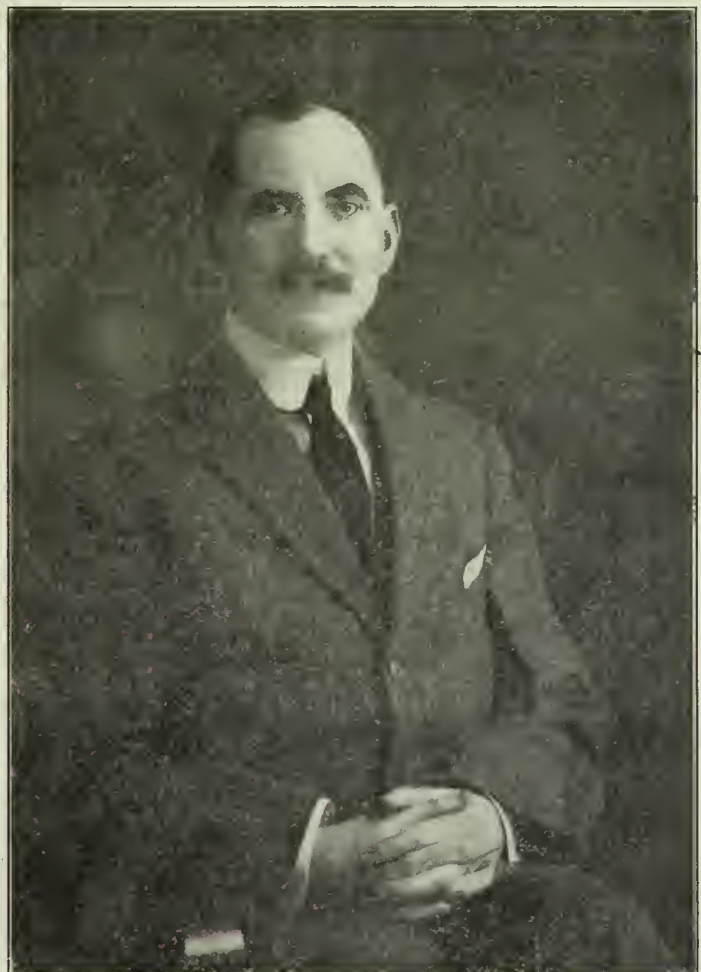
[In our last issue Professor Wickson outlined the origin and purposes of the undertaking to participate in which he is now on his way abroad.—ASSOCIATE.]

We have successfully eluded the sheriffs of the valley counties and gauntleted the game wardens and fire wardens of the mountains. We are out upon the plains with our gripsack uninspected and unsuspected

An Agricultural Aspect of Colonel Weinstock.—It has occurred to us that some readers who know of Colonel Weinstock in his commercial conquests and in his career as a publicist, may not know his relations to the agriculture of California. It is a fact, however, that he has broadly joined his relative and business associate, David Lubin, in all of the latter's notable public services for agriculture, and none has keener enjoyment of his successes. It is true, however, that each of the two well-known Californians has had his own line of approach to the public welfare. While Mr. Lubin was abroad building up the International Institute of Agriculture, Colonel Weinstock was occupied



Professor E. J. Wickson.



Colonel Harris Weinstock.

—except by the Pullman porter who kicks it up and down the ear-aisle as though in doubt of its content of a decent tip. Nobody knows us and nobody cares for that sort of knowledge. The very air of the desert is redolent of freedom and irresponsibility. The conditions are ripe for indulgence in a lot of very personal personalities, as we promised ourselves last week. We expect, in this series of letters, to comfort ourselves for absence from California by writing quite often about people, what they stand for and what they are doing, because, after all, people are the real thing and people's lives are what most of us enjoy and delight to think about and long to brighten if possible. The underlying yearning in this great quest, in which Colonel Weinstock and this writer are to participate as delegates from California, is to disclose some principle or method which will enable people to live better for each other and for themselves—for we doubt if there is much difference between altruism and egoism in their best forms. That, however, may be philosophy: it is not personality, to which we have consigned ourselves.

enthusiastically and energetically in promoting the success of the Commonwealth Club of San Francisco, of which he was president for several years. This Commonwealth Club, which is the greatest California organization dealing with public affairs, was, of course, the personal offspring of Edward F. Adams, who went also into publicism along the avenue of economics and agriculture, but after Mr. Adams had the babe born he chose Colonel Weinstock for godfather at the christening, and so it came along to greatness. But these are matters of very common publicity: what interests us more is not so well known, and that is, that Weinstock and Lubin, who built a commercial enterprise so great in the provinces that it had to establish a branch in the metropolis (thus quite reversing the ordinary course of development), have had for a quarter of a century, at least, participation in agriculture, owning lands, going through a producer's experiences, and thus practically realizing conditions which they tirelessly sought to improve. It was in this way suggested to Colonel Weinstock that he might do some-

(Continued on Next Page.)

Pacific Rural Press

Issued Every Week at 420 Market Street, San Francisco.

TWO DOLLARS PER YEAR IN ADVANCE

Entered at S. F. Postoffice as second-class mail matter.

Address all communications and make checks or money orders payable to

PACIFIC RURAL PRESS CO., - - PUBLISHERS

Advertising rates made known on application.

Copy for change of advertisements must be in office on Monday preceding date of issue. New advertising copy must reach the office by Wednesday a. m. to insure insertion that week.

E. J. WICKSON - - - - - Editor
FRANK HONEYWELL - - - - - Manager
W. H. SCHRADER - - - - - Adv. Manager
D. J. WHITNEY - - - - - Associate Editor

CALIFORNIA WEATHER RECORD.

The following rainfall and temperature record is furnished the PACIFIC RURAL PRESS by the United States Department of Agriculture Weather Bureau, at San Francisco, for the week ending at 5 p.m., Apr. 22, 1913.

Stations.	Rainfall Data.			Temperature Data.	
	Past Week.	Seasonal to Date.	Normal to Date.	Maximum.	Minimum.
Eureka .....	.02	33.23	41.56	62	44
Red Bluff .....	.50	17.40	22.81	78	46
Sacramento	T	7.38	19.57	78	46
San Francisco	T	11.31	20.98	70	50
San Jose .....	.15	5.56	15.80	76	42
Fresno .....	.04	5.88	8.63	82	46
Independence .....	.00	4.10	8.50	78	32
San Luis Obispo .....	.44	7.66	18.91	74	42
Los Angeles .....	.33	12.79	14.92	70	46
San Diego .....	.02	5.80	9.40	64	48

The Week.

It is no news this week to know that the editor, Prof. E. J. Wickson, is off on the Farm Credits Investigation in Europe, for which he and Colonel Weinstock were delegated by Governor Johnson, in accordance with a special act of the Legislature. The material in this week's issue of the RURAL PRESS was largely prepared under the direction of the editor. For the time that he is gone the readers will be left to a great extent to the mercies of the rest of the staff. The change—as there will be so much work connected with the trip that it will be hardly fair to call it a rest—is well merited. In December, 1875, Professor Wickson became editor of this journal, and every week from that time to this has had charge of every issue without exception, directing the work by mail from those trips East and elsewhere upon which duty called him. Those readers who during this time, or parts of it, have been looking every week for the comments on topics as they developed from week to week, and the answers to important questions, can readily admit that the change is deserved and forgive the staff in any falling from the standard of excellence. And yet it is good to say that this visit to Europe during the time it lasts, as well as afterward, may prove of more value and interest to the readers than if the editor stayed at home. This visit will not be spent, as most European visits are, in the cities, looking at places of historical interest, but the delegates will be learning of matters of agricultural importance, economically, and, it is very certain, agriculturally also, for those who have minds trained to careful observation and who know what to see in agriculture. Every week there will be a letter from the editor, and it may be believed that the California knowledge and European observation will more than make up for any temporary change in the managing editorship. So, if anyone thinks that the Press is hardly up to its usual high standard of excellence, and everything possible will be done to keep up the standard, forgive and hope for better things.—ASSOCIATE EDITOR.

Out in the World.

(Continued From Preceding Page.)

thing to help solve the great problem of the profitable disposition of California fruits through much wider distribution and wider sale. It was about that time that Chicago merchants held that that city could serve the whole country as a terminus for carload shipments and thenceforth other cities could get what fruit they needed in broken lots by express. It seems now a queer conception that the great Atlantic cities could get all the California fruits they could use by express from Chicago, for the present fact is that many thousand cars go direct from California to Boston, New York and Philadelphia. It was this altogether inadequate notion of the needs of the California fruit trade that Colonel Weinstock addressed himself—assuming the growers' point of view that nothing less than the widest avenue would carry California's capacity for production. Colonel Weinstock undertook personal investigation in Eastern cities at his own expense, and his conclusions set the pace for the progress of the fruit industries as it has been realized during the last two decades. He declared that the trade should be wide open; he advocated the auction method of sale which California shippers agreed to with much apprehension, but which was really the deliverance of the business from its old handicap of the dealers' interest to get the most money from the least amount of fruit. Colonel Weinstock saw that the key to the open door for fruit, the welcome to all to handle as much of it as they could at a profit, was the adoption of the auction method of sale, and it was upon the basis of his advocacy that California shippers adopted a policy which gave them freedom from previous thralldom and opened the trade to greatness. This is only one of several similar services rendered by Colonel Weinstock in clearing obstacles from the pathway of California industry, and it is only fair to expect that his work in connection with the inquiry with which he is now entrusted will be original, incisive, and influential.

The Party of the Other Part.

Of Colonel Weinstock's associate in this travel of inquiry, we are not sure that we can say anything that would be entirely fair. Although we have known him for many years, we have never been wholly satisfied with his motives and methods. It is possible that readers of the RURAL PRESS know him better than we, for everything that he has dreamed or done during the last 38 years has been manifested through the columns of this journal. As to his fitness for this special inquiry, readers must judge for themselves. We submit the case, your honors, without argument, except to ask attention to an item of newly discovered evidence, which is that the two best known general organizations of farmers in the State, the Grange and Farmers' Union joined in a request to the Governor for his appointment of their own initiative; that he did not ask for their approval although he deeply values it; that the appointment came to him wholly unsought, and is from that fact all the more highly appreciated. But, having gripped the credentials, he proposes to hold on to them, unless, perchance, the porter aforesaid should kick the outfit off the car. If anyone should desire to rob him of this distinction, he must needs take an airship and beat him to the dock in New York from which the Cunard steamer will carry the Commission at noon on April 26.

Whither We Go.

The steamer will sail direct for the Mediter-

anean, catching Canaries and Gibraltar on the way, and land at Naples; whence the Commission will go at once and be welcomed to the old world by the King of Italy. For several days there will be conferences at the International Institute of Agriculture, during which the organization and operation of that institution will be carefully studied and the philosophy of its existence expounded. There will also be full exposition of economic questions relating to agriculture by leading European specialists preparatory to the demonstrations which the Commission will secure by visiting the countries in which solutions of these questions are being worked out in practice. These questions have to do with production as promoted and financed by co-operation, and the Commission will fail of its mission if it allows any guilty co-operator of Europe to escape its scrutiny and judgment. The details of the work will be outlined in later letters as they shall be decided upon at the assembly in Rome. Roughly, they may be sketched with reference to geography and the flight of time as follows:

Italy—May 11 to 19.

Hungary—May 19 to 25 (sub-committees visit Russia and the Balkan States).

Austria—May 25 to 30.

Germany—May 31 to July 1 (sub-committees visit Denmark, Sweden, Switzerland, Belgium and Holland).

France—July 2 to 10.

England and Ireland—July 11 to 18.

The Commission will be unloaded in New York with its weight of newly acquired wisdom on July 27 and conveyed to railway terminals on selected motor trucks for shipment to all parts of the country whence its constituent parts were derived.

Reflections.

Balked of our mead of personalities, because one-half of this State Delegation of Two happens to be unfit for either praise or blame, we must claim indulgence in reflections. We presume a man gets more by absorption than by reflection, but which way does he really do more? The scriptural declaration of defilement by exit rather than by entrance is certainly a metaphor indicating a commendable course of conduct, but as a metaphor it seems to teach also that entering good may depart as bad, therefore one should always absorb and never reflect—but this we fear might be suspected of philosophy, and we climb out of it.

The reflection which we wish to indulge in concerns the PACIFIC RURAL PRESS, and perhaps we can strike a vein of personality along that line. This writer is going out of reach of the symbols of his craft for the first time in 38 years. Never before have the shears and paste perched beyond the length of his eager arms. Although he has settled around this continent a good deal, he has never failed to furnish his allotment of "copy" or to pass editorially upon the furnishing of others. He has never been too ill nor too far away to know just what the reader would get in each issue. Now there comes a period during which he cannot know, and the reflections at departing have a shade of sadness. First comes the feeling akin to that which a fond mother must endure when she is called to leave her darling to be fed by the squaws of the desert, but a little reflection, based upon actual experience, gives assurance that kids suckled and fed by squaws are the hardest and most reliant nuts of human kind that are ever shaken from the tree of life. Therefore reflections of the refining kind are mistaken. It gives us pleasure to remember that this journal was never before in such good health and heart to leave as now. This writer has sat

tight while quite a procession of publishers has passed by, and readers will join us in the declaration that the publishing end has never been so ably and effectively carried as it has been during the administration of Mr. Honeywell. In the delight of working with him and in the depth of devotion to the work in hand, his name is a record of facts. He will see to it that old standards are maintained or improved upon. In the line of writers, the RURAL never before had such a group of good ones as are now at work. By the interaction of the forces now available, notable improvements are to be expected, and getting out of the rut may give us back the journal in much better shape than we leave it.

California Vegetables.

Just before departing, we handed to the publisher the completed manuscript of the third edition of "California Vegetables in Garden and Field," upon which we have been at work as leisure has allowed during the last half year. The book will be printed as rapidly as possible and the demand for it, which we hoped sooner to meet, will be answered in a way befitting the appreciation which it has received.

Queries and Replies.

Querists must submit full names and addresses.

Help for a Gophered Orange Tree.

To the Editor: I find that a number of trees in my orange grove have been gophered. By digging about the trunk and roots I find the injury to involve anywhere from one-third to three-fourths of the surface. Some of them are practically girdled all the way round. I have owned the grove sixteen months. Some of these trees had been cut back to the forks before I bought the grove. The injury to all these trees occurred before my time. They have been "sick trees" for some time, judging from their appearance. Most of them have small yellow leaves and small undeveloped fruit. A few have one side markedly affected, the other side looking somewhat better.

I would like to know if there is any treatment which can repair the injury to these trees, and what the prospect is of their ever becoming healthy, profitable trees.

I should like to know what to do for such wounds in case we found them in the future, freshly made and of small area. Should it be decided best to take out these sick trees and replace them with new ones, how should it be done? I have been told that it is hard to make young trees grow when planted among larger trees.—D. E. Rialto.

There is little hope for an orange tree which has been so badly injured by gophers that it is unable to restore the bark of the root or stem so that the sap can rise. Such a tree may endure for a time but not regain vigor until this important connection is made by the process of healing. This healing is secured by the growth of new tissue from the edges of the wound and is sometimes hastened a good deal by the growth of new tissue from granulations of portions of the inner bark which the gopher has not cleanly removed. To promote the extension of the bark over the sides and from the granulations, it is necessary that a certain degree of moisture be maintained. Therefore the most rational process is to cover the injury with something like grafting wax or with a mixture made of clay and cow manure tied over the place with a cloth band. This mixture has the moisture retentiveness of the clay and the fine fibrous structure of the cow manure to make it cling close together better and avoid cracking. Where you can restore the bark by such a treatment the tree will soon regain vigor, although it should be cut back to reduce the amount of evaporation. Where injuries are too wide or too clean

to admit of this process of healing, the sap may be transported over the injury by springing in short pieces of orange wood cut in such a way that they enter under the healthy bark above and below the injury and attach themselves to the growing wood and carry sap. This is called bridge grafting. It requires a good deal of time and attention, but trees are sometimes saved in this way, and it is a very old process, because it has been long used in Europe and in the East, where sometimes trees are almost cleaned of their bark near the base by mice working under the snow.

As to whether it is better to take out trees which are badly injured and plant new ones, there is a difference of opinion, with a probability that better results would be obtained from a healthy young tree than by an attempt to restore the top of a tree which has been badly injured by girdling. It is rather difficult to establish a young tree in a place occupied by an old one, but this can be done by digging a large hole, by filling the hole in with new soil from between the rows or from some deposit from outside of the orchard and by using water and fertilizer frequently but not too freely, in the effort to push the young tree forward by special feeding and attention. This is also troublesome and expensive, and because people do not care to give the work the proper attention, such replanting is generally disfavored. It is true that a replant in an old orchard, unless it is given particular attention, is not likely to succeed very well.

Killing Morning Glory.

To the Editor: Enclosed find specimens of weeds. Are they both morning glory? I see by the last issue of the PRESS you advise cultivating to exterminate. I have a neighbor who last year cultivated thoroughly every week, and instead of killing it it has come up thicker and more of it. So please explain mode of cultivation, if it is anything different to the ordinary way. Is there no spray that is a known exterminator?—J. L., San Marcos.

We have mislaid our botanical spectacles and have no time to look for them. Practically, both specimens are morning glory, and it is a plant having variable leaf forms. As for the killing, no application will do it without killing the land for any other plant for a considerable time. Cutting to kill morning glory is not like ordinary cultivation, which merely breaks and distributes the self-rooting shoots and otherwise pleases the plant. Morning glory must be cut below the surface of the ground with a flat, sharp tooth or knife-bar, and never a shoot must be allowed to get green, or the plant takes a fresh start. You can find a full account of the method and what can be done with it in the PACIFIC RURAL PRESS of November 25, 1911, or you can send to the Experiment Station at Berkeley for a circular on the subject.

Danger in Summer Plowing.

To the Editor: I am wrestling with a lot of land in Glenn and Tehama counties and wish you would advise whether it is safe to keep on plowing, as I can in July, August and September. You see, we can plow with traction engines right along through the summer, where in old times we laid off mules. But the cry goes up that it "kills" the land and that it will not grow a crop the next year if summer plowed in those months. Can you solve the problem off hand?—Farmer, San Francisco.

We have no belief whatever in the idea that summer plowing ruins the ground, although we can readily see that such plowing not followed by proper harrowing and sub-surface packing might put the land into such mechanical condition that one year's rainfall, especially if somewhat limited in amount, would not be effective in bringing a

crop. Moisture is the ruling factor in California valley grain growing, because we see lands which are said to be worn out bringing almost as good a crop as ever when the moisture is adequate but not excessive, and when it is properly distributed through the growing season. Therefore we conclude that your summer tillage must be done in a way to retain moisture during the following rainy season, or the first products of the land following such tillage are likely to be small.

Sulphur Blast vs. Dust.

To the Editor: A Santa Rosa man has invented an appliance to burn sulphur and blow the fumes through the grape vines, thereby checking the mildew. Do you know any reason why it should not be a success?—P. T., Santa Rosa.

Nothing but careful comparative tests will answer the question. Theoretically there is possibility of killing all germs on the vines at the time of the application, with a doubt as to whether this would be as good protection as sulphur progressively vaporized by sun heat, and therefore acting through a much longer period against new germs constantly arriving. Besides it is a very difficult thing to apply sulphur fumes artificially without destroying the foliage. Again, dusting sulphur is about the cheapest fungicide to apply over large areas. The fume method has a great many economic barriers to surmount. All these things have to be demonstrated; not dreamed about.

Protectors and Whitewash.

To the Editor: I have recently set out a peach and almond orchard and am thinking of putting on one of the commercial protectors which are on the market. However, I have noticed cases where trees covered with these protectors put out weak, watery and spindling shoots under the protector which wilted and died when exposed to the sun. They also appear to afford an excellent breeding place for insects. I would appreciate your opinion as to the value of these protectors as compared to simply whitewashing the trees.—E. D., Marysville.

Light colored tree protectors are all right if they are used right—not adjusted so closely as to exclude light from shoots which you desire to make branches, and carried down far enough to protect the bark just below the hot dry surface soil. We prefer, however, a good whitewash used frequently enough to maintain a good white covering.

Tomatoes, Strawberries and Alkali.

To the Editor: Will you kindly inform me through the PRESS what results one can expect with strawberries and tomatoes on good black sandy loam which contains in places a moderate amount of white alkali. I can run plenty of water through all rows.—M. G., Watsonville.

No one knows what "a moderate amount of alkali" is. It generally means in fact a lot of it. What the plants you mention think of it can only be told by trying. As for plenty of water to use: it would mean more or less alkali after irrigation according to the character of the subsoil. Generally alkali increases by irrigation unless accompanied by under-drainage. Your proposition is a good one to be very careful about.

Root-knot on Berries.

To the Editor: I am mailing you, under separate cover, a sample of what I think is root-knot. I planted last year about 25 loganberries, and in digging around them last week I found all vines to have root-knot just below the surface of the ground as large as two fists. The vines do not start out as vigorous as they should. Can you tell the cause and the remedy for same.—J. D. B., Hemet.

There is no remedy applicable in your case. Vines which have gone so far should be dug out and burned. Roots at planting should be carefully examined and affected plants rejected.

Reasons for the Gravenstein.

[By OUR ASSOCIATE EDITOR.]

Over all California we know of the Gravenstein apples from Sebastopol, and in all the large markets of the country they are also known, even if California is on the edge of the continent and the Gold Ridge on which the apples are produced in a county bordered by the Pacific. It seems queer that from just this single section would come apples of a certain type to supply the whole country, and the reasons why it does so are more interesting than fiction; in their broader light they illustrate the importance of little things in influencing horticulture, in making one variety a success here and a failure there in locations that are really very similar. Moral: If you go to a new place and the farmers tell you that some crop cannot be grown there successfully, you had better believe it, provided they have tried it. If their reasons come on account of its success under different conditions and not through actual, fair trial, it may be all right to take a chance; otherwise go slow. But that is a little off the subject.

Now, in the first place, these Sebastopol Gravensteins come from a section called the "Gold Ridge," on the west side of the Sonoma valley a few miles west of Santa Rosa. It is on the gently rolling hills at the foot of the Coast range, Sebastopol, at the edge of the valley, is the central shipping point, which gives the apples their name. The Ridge extends six miles west into the rough country, six miles north and six south—all rough figures as to extent.

The forests of the northern coast counties covered this with a thick covering until the march of civilization drove the timber out and the orchards in. Where clearing was not finished, at the side of the road, around the homestead, along the brooklet, the fir, oak, madrone, and other forest trees, to say nothing of the thick tangle of underbrush, still give evidence of the way Nature planned the region, what vegetation she thought was most fitting.

And now, what relation does this bear to the especial fitness to the Gravenstein, and we might also add to the berries that are nowhere surpassed in excellence? Well, the difference in the above from the natural vegetation of most of California will answer as far as California is concerned. The climate of California will answer as far as the rest of the country is concerned.

Climate and Soil.—We mention climate before soil, for climate is just about the most important factor there is in determining the quality of the soil. And yet it might be half fair to say that the climate has given it a soil about half like that of the East, with its heavy rainfall, even though the climate in other respects than rainfall is typically Californian. It is enough like California to make oranges and lemons a very pleasant and most profitable crop for dooryard and local use. The average precipitation on the Gold Ridge is about 35 inches a year, coming in just the same time as the California rainfall everywhere. That is the reason why the native trees were so numerous and brush so thick.

That rainfall washed out the clay from the upper part of the soil and brought it down several feet, just as the heavy rainfall of the Eastern States usually washes the clay down there and makes a clay subsoil. At the same time, it left the top soil as a soft loam that it does a man's heart good to see, especially if he has been working in adobe, in a sand or in a soil that bakes like a rock on top when it dries after too little cultivation.

Our long dry summers make the loam dry out far enough to be deep and well drained and aerated. The clay on the bottom holds the moisture all summer long, and it needs but good cultivation to keep the loam in an ideal condition for moisture. The district thus has the advantage of our long dry summers and also of a self-irrigated soil. Naturally a soil so rained upon and occupied largely by fir trees has had much plant food washed out and is not as strong and rich as soil in districts of little rain. It is fertile and productive, but will need lime and potash very much sooner than ordinary California soils.

Speaking of rainfall, although most of the State

this year needs much more rain, this district has soil as moist as can be desired, and the hay, where some little has grown, is as high and thick as it ever could be, though this is just the normal situation and is equaled in all of the northern coast counties. In fact, there never has been a crop failure for lack of rain in the district, nor in most locations of somewhat similar location.

This soil, by the way, could not stand the intense heat of most of California. Frequently in summer a series of hot days comes along and dries out the soil a little, but it is so near the bay that the fogs, which always follow those hot spells in the bay counties, come on up and before they have gone the moisture from the subsoil is up and everything is in first-class shape and nothing has been injured.

It is also off the path of the strong winds coming from the ocean to the hot interior, and is far enough from the interior to make torrid weather rare, all of which makes it good for apples.

Apples and Berries.—We all know that if you want to get the best apples you have to get into a hilly country, or at least into a district where nature provided that trees and underbrush should be abundant. That is why the Gold Ridge is just suited for apples and berries, and apples and berries have long been grown, and apples of all varieties. Yet most excellent apples can be grown in many other sections, in nearly all of the United States, in fact, except perhaps the Gulf States. If it were merely competing for quality or quantity, there would be too much hard competition, and the only apple that stands out above all others for the district is the Gravenstein. That comes because it is early. Other districts have an apple soil and climate, but none other combines those two with the earliest ripening climate that anyone knows of; so Sebastopol ships off the Gravenstein, the earliest good apple, six weeks before a real good apple from any other district is in the market. There may be a big overproduction of apples develop in the future, but with six weeks, or even three weeks, for the production of one little district, and the whole United States for a market, and no one fears overproduction here.

We all know of Sebastopol Gravensteins, but it was some time before the especial value of the Gravenstein was learned, and there were lots of other apples in by that time. The Gravensteins take quite a little time to get in anything like full bearing, and the future production of this apple there will be far and away greater a dozen years from now than it is at the present time.

Crops.—Crops are always good—nearly always, anyway. Apples outside of California have much trouble often with frost, but frost has never hurt in the Gold Ridge; therefore there is no trouble on that score. There have been bad frosts in California this year, but even the prunes are not hurt in Sonoma county and apple blossoms are still more hardy. Likewise there has never been a deficiency of moisture. Occasionally there has been a very wet winter that cleared off early and stayed clear and made trouble in plowing and getting the soil in the best possible shape; but that is bad distribution of moisture, not too little of it. There has also been too much moisture, when continuous rains washed the pollen out of the blossoms, and that is the only thing that ever causes short crops.

Apples are also alternate bearers, but some trees or orchards have one year for their light crop, and the others other years, so taking one year with another for the district as a whole, the crops are pretty uniform.

Berries.—The same soil and climatic conditions that make apples such a success also make berries

a great success, and these pay the way of the apples while the latter are getting ready for business. The berries also are early for berries, and have the edge in the Eastern markets for a time, and much is shipped in that way.

Nearly all the berries are bush berries. The standard berry is the Lawton, which is produced in much largest quantity. The Mammoth also comes in, a later developed variety, but popular. The raspberry is grown a little and is very profitable when on the very best soil, but the loganberry is the great berry now. It is very prolific, much desired by the canners, and holds up best of all for the Eastern markets. Apparently, all that could be produced could be sold in the East, provided they could be marketed, but they ripen in a hurry toward the last and have to be picked and canned. Loganberries are still far behind the Lawtons in total production, but the new acreage is ahead of the Lawtons by a good margin.

Although all of the berries are popular, they are secondary to the apples. Except in rare cases a man grows berries only until his apple trees get into bearing, planting trees and vines at the same time. Thus it is that the vines are being pulled out all the time as the trees get large, and the berry acreage is only holding its own. But it is a good "own," for berries will pretty nearly pay their way the second year, will be nearly in full bearing the second year, and only begin to go back about the time that the trees are overcoming them, anyway. Meanwhile, they will give perhaps two tons per acre, grossing about \$50 to \$60 per ton, with \$20 per ton for picking, and when the trees take their places the trees will bear as profitable a crop as the berries or better; much better when they reach full bearing.

Social Improvement.—And just for a finishing touch, let us say that it is a "white man's country;" that the economic, racial, and social evils that have entered some districts owing to the inability of the growers to get labor and run their own places are practically absent, are declining for the little they do exist. The labor question, it is true, is a problem. Yet it is a country of small orchards where the owners do all of their own work except in the rush seasons, and it is a district of owners, not of tenants. Thus there is paint on the houses, the fences are tight and straight, the places are artistic and well kept up, there are good neighbors and plenty of social intercourse.

Likewise the growers run their own orchards. A few years ago it was not unusual for growers to sell their crops in the spring, which meant less interest in its care, in farming generally; but we all know what that has meant in some places. Now the apples are so largely marketed through the Apple Growers' Union, the growers' organization, that every grower manages his own crop and sees that the fruit is as clean and fine as possible when it gets to the packing-house. The result is the pack of the Sebastopol apples is ever getting a better reputation, the growers are looking more after their own fruit and improving their methods.

Even the drying business is a white man's business. It once was largely in Oriental hands, but improvement elsewhere has meant improvement there, and as fine a quality of dried apple is put up as the quality of the fruit will permit, and it is the growers themselves who are doing it. We say an American can't compete with an Oriental. Well, some ways he can't, but it is quality that counts, and things have paid so well by putting up the quality that the white man made the most profit, and the Oriental had to quit. It is a region of homes, where the grower does his own work, uses his own brains, lives as he ought, and gets the money he ought by marketing his goods as he ought. May other sections do likewise!

More Money for More Sugar.

[Written for the PACIFIC RURAL PRESS by PAUL PARKER.]

The Department of Agriculture is continually sending out appeals to the American farmer to go in for the cultivation of the sugar beet. Their pet phrase is, "Keep your money at home," and a recent report of the Government bears out their

admonitions; for, annually, does the United States import two million tons of sugar at a cost of some \$208,000,000. But, however insistently the Department of Agriculture has urged a larger beet acreage, just as insistently have some of the farmers replied that the returns were not adequate when compared with grain, alfalfa,

corn, and other crops. Some argued, "If by dint of hard work, a judicious use of gray matter, and painstaking industry we are able to improve the quality of beets, why not let us share some of the profits that are derived from the better beet?" So the factories, one after another, have changed their old methods of paying for beets, and now compensate the farmer according to the amount of saccharine matter in them. Last season the largest sugar factory in the world—that of the Spreckels Company, situated at Salinas, Monterey county—changed its policy in regard to beet payments, and the method introduced was a success from start to finish, unqualifiedly so. By their new schedule of prices, the growers are given the choice of two contracts for their beets: either the old method, a flat rate of \$5.50 per ton, or on a sliding scale, the basis of which is determined by the sugar content, that is, beets testing less than 15% sugar are paid \$5.25 per ton, but for every additional per cent of sugar over 15%, 25 cents is added.

When these two methods of contracting for beets were offered the farmers last year, a few, timorous or skeptical of results, chose the flat rate of \$5.50 in preference to the sliding scale, and as a result lost considerable money. The largest individual loss was \$822, and they range on down in proportion to the men with only 25 or 30 acres. Their aggregate loss, however, totaled \$3590.10—no small sum to be cast aside into the coffers of the Spreckels Sugar Co. To illustrate, the following figures show some of the farmers who stuck to the flat rate of \$5.50 and what their beets would have brought per ton under the sliding scale and their loss per ton.

Name.	Sliding scale.	Loss.
Sin King Co.....	\$6.85	\$1.35
W. R. Thompson	6.35	0.85
J. Northup	6.65	1.15
Sillaei Bros.	6.48	0.98
J. N. Petersen	6.15	0.65
L. Oka	6.25	0.75
Thos. Silvear	5.25*	....

*A gain of 25c, as beets were below 15 per cent.

On the other hand, here are a few of the growers who accepted the sliding scale, and their gain per ton over the old method:

Name.	Sliding scale.	Gain over flat rate.
J. W. Storm	\$6.84	\$1.34
McGrath & Clark	6.79	1.29
Chapman Foster	6.50	1.00
Ross Nissen	6.35	0.85
G. A. Anderson	6.77	1.27
M. F. Martin	6.11	0.61
F. J. Griffin	6.75	1.25

There is not space enough to go on further enumerating the farmers who were the gainers by the new scale of prices, but the average of the 50 farmers who took advantage of this method was \$6.20, or a gain of 70c per ton over the flat rate. Taking 70c as the average gain per ton, and, on a basis of 15 tons to the acre—the average in the Salinas valley—it is seen that the growers gained \$10.50 per acre over the old flat rate of \$5.50. This puts beet raising where there is money in it; as it costs on an average of \$35 per acre to raise beets, and 15 tons at \$6.20 would be \$93, the net gain would be around \$58. These figures are typical of the State, although there are some beet-growing sections in California where the average tonnage is higher than 15 tons, and also the sugar percentages are greater than are found at the Spreckels factory.

What the New Scale of Prices Developed.—In making the tests for the sugar content of the beets, it was universally true that those farmers who received the high sugar percentages planted their beets early; that is, by February or March. And it was true on all classes of land; on that soil which did not produce a heavy tonnage or a large beet, and on soil, fertile and moist, where the tonnage was heavy and the sugar percentage lower. For early planting enables the beet to have a longer growing season, and it also receives more sunshine; for, to use a common saying of the streets, "the sun's the guy that put sugar in sugar beet."

Another advantage, too, of early planting is that the crops can be gotten out of the ground before the heavy winter rains commence. A rain not only covers the beet with mud and makes dockage necessary in weighing, but it also re-

duces the sugar percentage. Likewise, a rain makes very heavy pulling on the horses in the fields while loading the wagons and cuts up the roads badly.

Those farmers who plant their beets late, do so to avoid extra cultivations, as after each rain the weeds will come up; now, however, with a premium on early planting and better cultivation, the farmer who plants late in the Salinas valley will be the exception.

Cultural Benefit to the Land.—Since this new scale of prices has been adopted by the Spreckels Company, many farmers have announced their intention of planting sugar beets. The prices are not only attractive, but the cultural benefits to the land are good. It makes diversified farming

possible and profitable. Beet culture will be especially valuable to those lands where continuous cropping to shallow-rooted crops has depleted the amount of available plant foods along the surface. But the deeper plowing, however, and the more thorough working of the soil, will open up plant food never before available. Also, the continuous cultivation of the beets helps reduce the weeds, such as grain crops permit to come up and infest the land. And the long deep root of the beet which penetrates the subsoil opens up new channels for the roots of subsequent crops to follow. There have been instances in the Salinas valley, on land that had been sown to grain for years, where after beets had been planted the increased yield of grain has been 40 per cent.

Producing and Marketing Pork.

[By OUR ASSOCIATE EDITOR.]

The above is a big heading for just a short sketch, but both production and marketing are very essential factors in an experiment with two lots of hogs at the University Farm, told of by J. I. Thompson at the organization meeting of the California Swine Breeders' Association, and it can well be said that it is most rare to have such a large amount of extremely valuable information put up in such a small compass.

As we said elsewhere, pork production is but up to a small fraction of its possibilities in California, and naturally there is a big fault somewhere for such a condition. The proposition is to find where the fault lies, and that was what the Department of Animal Husbandry at the Farm tried to do.

They picked out 38 hogs for the experiment last summer, and divided them into two herds as evenly balanced as possible for age, sex, condition, etc. One lot was run on alfalfa pasture until November, when the pasture ran out. They were then run on a dry lot and fed alfalfa hay, which, it is worth remarking, had to be chopped to make it fully palatable. In addition, all the barley that they would clean up was fed from start to finish. Lot two was given exactly the same treatment, except that the amount of barley was cut down one-third.

Results.—And now for the results in dollars and cents for the two lots, both of which had much more grain than the ordinary hog, who gets only three weeks or so of grain before marketing, if he gets that. The day they were marketed the regular price was \$8.35 per hundred. Lot No. 1 sold for \$9.12½, and lot 2 for \$8.80. In other words, the full grain-fed hogs brought 77½ cents more per hundred than the market, and lot 2, 45 cents more. In addition, they made a much greater gain in weight than straight alfalfa and grass-fed hogs would.

Figured out with barley worth \$1.50, the first lot was more profitable than the second by a comfortable margin, and the second lot more profitable than grass-fed hogs by a nice margin. In other words, with barley at \$1.50, it pays to feed all the barley that the hogs wish, provided they have the alfalfa pasture they need. That is, provided the method of marketing will enable the shipper to get a fair price for the extra finish.

Finishing Facts.—Before we go to the marketing, a word or two should be said about the finishing of hogs. According to Prof. Thompson, the ordinary couple of weeks feeding of barley does practically no good to a hog, and may do harm. In the first place, everything needs to become accustomed to a new food before that food is of full value, and the change from no barley to a lot of barley is too abrupt. In the second place, the time of the feeding is so short that the shrinkage in transit nearly destroys whatever finish the grain has given, and the hogs might about as well be shipped from alfalfa direct.

The real advantage of feeding grain came from the fact that it was a part of the feed all along, and the hogs were grain finished all the way through. They also shrank little in shipping, lot 1 netting \$8.80 live weight on ears at the University Farm.

The gain in weight from pighood up is illustrated in two pigs from Davis now on the demonstration train. One came from the Farm and weighed 325 pounds when sent off. The other,

bought from a farm nearby, about the same age and a good pig to begin with, had no grain and weighed 105 pounds when put on the train. Since starting its travels, buttermilk and grain has been in good supply and it has gained 20 pounds. That will do for the raising of the hogs; now for the marketing.

How Marketed.—If a person is going to feed barley to hogs and get only grass-fed prices to make up for the extra weight, he had better quit and feed only pasture, or what is handy; so the thing to do is to market so that grain-fed prices will be given. These hogs were marketed by special arrangement for payment on the dressed weight instead of live weight. There was no extra price whatever paid on account of coming from the University Farm, and as a matter of fact the packer got a better buy than he did with grass-fed hogs at market prices. They were sold, by the way, to the Western Meat Co., which will buy any other hogs that are brought up on grain on exactly the same basis.

As said before, the extra price came from making a greater weight dressed. The ordinary California hog dresses 75% and leaves 25% offal, which is useful only for fertilizer and low-grade purposes generally. The packer thus gauges his prices to the producer on what the dressed meat costs him, and can pay a good deal more for a 200-pound hog that will dress 80% than for one which will dress only 70 or 75%. With ordinary California hogs selling at \$7.35 and dressing 75%, the packer can and does pay, when the hogs are sold on that basis, 15 cents extra for every per cent dressed over 75%. Thus hogs dressing 76% would bring \$7.50 per hundred instead of \$7.35. That is just the way these hogs were sold. The first lot dressed 80.7% and the second 78.7%.

Figuring this out on the dressed basis, the packer paid \$12.52 per hundred for the first lot, \$12.65 for the second, and was paying at the rate of \$12.74 for the common hog. Thus they were getting a better buy at \$9.12½ for the grain-raised hogs than at \$8.35 for common hogs. In addition to this, they naturally made much better pork than the common hog and were a much better buy all the way along, as well as being more profitable to the producer. And, Mr. Thompson assured the swine breeders present, the proof that this extra price was not made up for the sake of making the experiment a success, lies in the fact that the same company that bought that lot of hogs stands ready to buy grain-fed hogs of any swine man anywhere on exactly the same basis.

It is a concrete example of the advantages of raising hogs with plenty of pasture and plenty of grain. It is better for the producer, it is better for the packer, better for the industry, and we may very well believe lots pleasanter living for the hog.

A YEAR'S COW TESTING IN STANISLAUS.

[Written for the PACIFIC RURAL PRESS by
J. C. LOOMIS.]

The Stanislaus Cow Testing Association finished their first year's work April 1, and like all other such organizations it has brought out some very interesting and profitable points.

At the end of the year there were 29 herds entered comprising a total of 900 head of cows, and the results obtained were far above the expectations of many, considering that it was the

first year and that a great many difficulties presented themselves in different ways.

At the beginning of the year the association was started with a good sized membership containing most of the pure-bred herds in the district and a good many grade herds. The charge of testing was set at \$1.50 per cow per year to be paid in three installments at different times through the year.

A tester was hired at a salary of \$60 per month, and a horse and buggy. Babcock tester and other paraphernalia purchased.

The tester visited each ranch twice a month usually 15 days apart. Considerable trouble was experienced in securing the services of a satisfactory tester until Mr. Hackett of Ceres was obtained, and after that time until the end no more trouble was encountered.

A good many of the herds entered at first were sold during the year, some of them being sent to other parts of the State and some being sold to local people who did not care to continue the testing so that at different times throughout the year new herds had to be secured to keep up the number necessary to sustain the Association's expenses.

In this respect several peculiar instances come up which show how short sighted some of our foreign dairymen are. One of these cases was where a herd had been entered and paid for in advance for several months. Soon after joining the herd and ranch were sold to a foreigner and when the tester went around for his regular visit they informed him that they were not ready. After several such visits they finally told him that they didn't care to have their cows tested even if it were done free of charge.

Other instances of the same kind were found which seriously interfered in being able to give as much data on the success of the association as was desired.

Many individual advantages can be found of where the association benefited especially by those who went through the entire year's work.

Some herds containing individuals that were considered almost worthless proved to be the best butter-fat cows in the herd and vice versa.

With the association every member can tell just what each cow is doing for the month or the year, and the association was the direct cause for many dairymen to dispose of their "star boarders" and substitute new cows in their places.

One instance of the benefits derived was forei-

bly pointed out in the experience of Chas. Odell.

While Mr. Odell has a pure bred herd of Jerseys he also maintains a herd of grades on another ranch, and while attending an auction sale in January, he bought a grade cow for \$42. The man who was selling out had never tested, but stated that he was selling out so that he could get some first class stock. Mr. Odell took the cow home, and in two weeks she calved. On the next trip of the tester she was put on test and during the months of February and March, 58 days she gave 97 lb. of fat. As every one knows a cow giving a pound and a half per day is a valuable cow to anyone, and still the man who was judging solely on his own judgment sold her cheap because she wasn't good enough for his purposes.

Many other forcible arguments in favor of the association were brought out, but this example it would seem is sufficient.

This being the first year no data is obtainable for comparison so we are giving only a few figures which show the high standard of animals that were entered, and which we believe run far ahead of the average California herd.

	Lbs. fat per cow.
Highest average herd test.....	372.1
Lowest average herd test	251.5
Average herd test	309.
Highest average cow test	504.6

	Lbs. milk per cow.
Highest average herd test	9,865
Lowest average herd test	5,644
Average herd test	7,094
Highest cow herd test	15,898

At the regular annual meeting the following were elected directors for the coming year:

G. H. Miller, President; J. S. Rhodes, Vice President; Farmers Union, Secretary; Modesto Bank, Treasurer; H. E. Cornwell, D. F. Conant and G. O. Hillier.

For the ensuing year another tester has been procured to do official testing, and this will be run in connection with the unofficial work. Fourteen members with pure-bred stock are paying for the official testing at \$7.50 per cow per year with a limit of 12 cows to each breeder.

With the interest being manifested throughout the district in building up their herds it is hoped that enough new members will join to require the services of more testers in the future.

maintained in good condition, and he will soon be convinced. It will take several generations of feeding before the offspring from the poor cow can utilize feed to as good advantage as the offspring from the well-kept herd.

This habit of the pure-bred animal (be it a dairy, a beef cow, or a draft horse) to utilize its feed for the purpose it is supposed to use it, is the underlying principle that distinguishes a pure-bred from a scrub that has not been bred or fed for any particular purpose. Think of pure-bred stock in the simplest manner possible. There is nothing mysterious about them. They are like any other animal with fixed habits of growth and development. These habits, however, have been shaped by man to his advantage: they will remain permanent if you will provide the proper conditions therefor—plenty of feed and good care.

It might be possible to take ordinary scrub stock and in the course of ten or twelve generations build up a fine herd, one that would approach some of our present good pure-bred herds, provided you are an expert breeder and feeder. After progress has been made in this manner, one will soon conclude that he must also own a few pure-bred females and thus be able to build up a pure-bred herd that will be a source of pleasure as well as profit.

SIZE IN HORSES.

There is lots said about size in the stallion and the value of a pedigree in getting good colts, and too little may be said of the mare. Size is the thing horse breeders strive for, and some points to think about in going after size are given below.

It is true that in breeding all kinds of stock there is an acknowledged principle that like produces like. So far as species and, to a certain extent, character are concerned, this may apply. Yet size and stature are often governed by circumstances which the most astute judgment can neither foresee nor control.

In the breeding of draft horses there are two important points, namely, size and a disposition to put on flesh; this latter tendency is an essential to success as it is in cattle and sheep. To breed horses of marked size and substance, the first impression which naturally arises with the uninitiated is that of procuring mares of great size and selecting for them partners of still greater magnitude.

There is nothing, however, more uncertain in this respect than the produce of very big mares. It not infrequently occurs that a medium-sized, and sometimes, indeed, a small-sized, mare breeds large foals, and in the event of one of such offspring being employed as a brood mare, in the hope that her progeny will be equal to or perhaps exceed the proportion of the dam, that she gives birth to mean, insignificant foals. It frequently happens that her produce will in this respect follow the granddam, such being the propensity of nature to go back to originals. Very big mares will, as often as not, produce one or two foals of great size, and many of insignificant proportions.

Hence it is desirable to ascertain the height and general propensities of the family. That cannot, however, in all cases be accomplished. Abundance and variety of feed has a great effect upon the size and substance. The heavy-legged, lethargic mare of elephantine proportions is far from being likely to produce foals which will realize big prices. But a mare with a roomy frame, a great middle piece on short, clean legs, strong shoulders, and marked developments of the loins and quarters, put to a stallion of adequate proportions, will probably produce both size and substance. Even here, however, success is by no means certain.

The horse for city requirements and for other purposes of heavy draughts, in which great power is required, and more activity and pace than the ordinary draught horse, is usually more readily obtained by mating a roadster or a blood horse having good bone, with good-shaped, active draught mares, than by reversing matters and mating the heavy horse with the light mare. Such progeny require action, and might be able to trot at the rate of seven or eight miles an hour. —Adelaide Observer.

Pure-Bred Cattle for the Farmer

[Written for the PACIFIC RURAL PRESS by
W. M. CARRUTHERS.]

The average farmer who has never had a pure-bred animal on his farm, looks upon registered stock as if there was something mysterious about them. Something of an artificial nature; that they are likely to lose under what he considers "practical farm conditions." He sees them at fairs where they appear in show condition, and quietly says to himself: "These cattle are all right to look at, but they would be of little value on my farm."

If he happens to be a poor farmer, or at least a poor live stock man (one who thinks that a milk cow should be able to find her board in a bare alfalfa and foptail field during the winter and still give a good supply of milk), his judgment that the best stock would not prove profitable to him may be correct.

Pure-bred cattle or other live stock are what they are, largely because of the feed and care they and their ancestors have received. One might breed what are now considered the best strains of any breed of cattle for a century and pay the closest attention possible to mating, and yet if no thought were given to feeding to bring out their latent qualities no progress would be made.

Instead of progress there would be decided deterioration. Feed is needed to develop stock. Feed is what brought out our present highly developed breeds, and their excellence cannot be maintained without continuous liberal feeding, with good care. Nor is mere feed and care all that is needed. The right kind of feed must be supplied. In other words, the character of the

ration must conform to the needs of each animal and the purpose for which it is kept. The above should not be construed to mean that the pedigree of an animal, which is a guarantee that it is pure-bred or that it has been bred and fed with intelligence for a long term of years, is of no value.

The present excellence of the animal is the result of generations of liberal feeding and careful mating. Bear in mind that habit, good or bad, in lower as well as in higher animals, is one of the strongest factors to be reckoned with in the animal kingdom. If there was no such thing as habit, nothing, either high or low, could be accomplished with any animal.

What does the force of habit mean to animal breeding and feeding? It means, among other things, that an animal whose ancestors have been in the habit of maturing early in life—of converting their feed into meat or milk, of building up muscle in certain places, of covering certain portions of the body with flesh and fat, of developing strong hearts and vigorous circulations—will transmit these habits to its offspring.

Habit might in one sense be termed heredity. When one buys a high-class Short-horn or Hereford, or any other pure-bred beef animal, the habit of producing beef is usually so strongly developed that it will transmit that habit to its offspring. Of course, it is essential that continued liberal feeding be followed, otherwise the habit of leanness will be acquired. Should any one doubt this, let him buy a cow of a breeder of pure-bred cattle who never keeps his stock in good flesh and who has kept his cattle poor for several generations, and then contrast her and her offspring with another from a herd that has always been

Panama-Pacific Horticulture.

To the Editor: The representation of the horticultural industry at the Panama-Pacific International Exposition in 1915 will differ in many respects from that of previous expositions held in the United States, because of the increased importance given the Department of Horticulture in the official classification of the Exhibits Department.

All of the exhibits will have an exceptional educational value by reason of the wide range of product it will be possible to assemble. Special endeavor will be made to secure the finest achievements the world has produced in exhibits in newly created fruits, trees, flowers, etc. The favorable climatic conditions which prevail in San Francisco will make possible the planting of all classes of plants at almost any season of the year.

GREAT EXHIBIT PALACE.—The Palace of Horticulture will be one of the most beautiful and imposing of all the exhibit palaces. Especially located and constructed accommodations have been provided for the tropical and semi-tropical countries, that they may bring their rarest plants and fruits and exhibit them to the very best advantage. Adjoining, and for convenient comparison, will be the quarters for the exhibits of indoor shrubs and plants from the temperate countries, and the exhibits of fresh fruits, which will be an important feature maintained through the exposition period. This will, in a way, be a continuous illustrated lesson, affording the visitor the opportunity of ascertaining the direct effect of soil, climate, altitude, etc., upon the size and flavor of the different varieties of fruit.

The horticultural gardens for nursery stock will occupy a large area, from 25 to 50 acres being available, as necessary

for competitive exhibits. The contracts for the exhibit palaces call for their completion in July, 1914, nearly eight months before the opening day, February 20, 1915.

TROPHY FOR FINEST ROSE.—As a means of commemorating the exhibition through the Department of Horticulture, the board of directors has offered as a trophy to the creator of the finest rose exhibited at the Exposition a beautiful \$1,000 cup. This will be given in addition to the regular award. The rose will receive its name from a committee appointed by the board of directors of the Panama-Pacific International Exhibition, and will be judged from its size, form, color, stem, foliage, distinctiveness, substance, and fragrance. The competition will be open to all.

The bulb-growers will also find displays of especial interest. In addition to the splendid gift of a half million bulbs made by the Bulb Growers' Association of Holland to the Exposition authorities to be used only for ornamental purposes, the competitive exhibits will contain displays from all of the leading producers of Holland. Already great interest has been manifested in this direction, and the newest and finest creations have been promised. With the additionally large exhibits from the American producers flanking those from Holland, the opportunity for comparison will have great value.

Aside from the actual horticultural exhibit, the Exposition grounds will be as enchanted gardens. The frostless climate of San Francisco will permit the Department of Landscape Gardening to accomplish floricultural wonders.

G. A. DENNISON,
Dept. of Horticulture.

NATIONAL FOREST BEE RANGES IN DEMAND.

A growing industry in connection with the use of the National Forests is the production of honey. Hundreds of bee owners in southern California have found that the Forest Service can lease them a range on which much better material for the production of honey can be secured than is possible in districts unprotected from fire.

The profit to be derived from the production of honey is just being appreciated. In the last two years the price has doubled. Owners of apiaries are now getting from 15 to 20 cents a pound for comb honey, and from 6 to 8 cents for extracted honey. On the National Forests of southern California, especially, the range is particularly good for bees because there is such an abundance of wild buckwheat and sumac; these and black and white sage produce fine honey. The orange blossoms give the highest priced honey. Bees will range a distance of 3 to 5 miles from the hives. They will yield on an average of 100 pounds a season in each hive, and the average apiary has from 75 to 100 hives.

The rental collected by the Forest Service on the range is \$5 per season for each stand which consists of 50 hives or less. All over 50 hives must pay 10 cents per hive additional. This season is going to be exceptionally favorable on account of the frequent rains. The bees require warm nights which bring what is called the "honey dew."

This use of the chaparral cover of the southern California mountains is one more reason why the greatest care with fire must be exercised. Rangers patrol the canyons all summer long, but in spite of their watchfulness hundreds of fires occur every year from unextinguished campfires left by careless tourists.

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What the Meadow Lark Does.

A wide demand has arisen for an accurate account of what the meadow lark does and what can be done to limit losses on his account. The following is the summary of a most thorough examination conducted by Harold C. Bryant, and of which the results are just published as Bulletin 236 of the University of California Experiment Station:

Owing to the constant complaint of ranchers as to the depredations of birds throughout the State, the California State Fish and Game Commission in co-operation with the University of California has undertaken a thorough scientific investigation into the relation of certain birds to agricultural interests. The Western meadow lark has been the first one to receive attention.

The investigation has included field investigation, experimentation, and a study of the food-habits of the bird for the whole year by an examination of the stomach-contents of birds collected for the purpose each month of the year and in over 25 different localities in the State.

Field investigation has shown that the Western meadow lark destroys sprouting grain. The amount of damage varies with the depth of planting, the size of

the field, the condition of the soil, the proximity to pasture or uncultivated land, and the abundance of the birds.

Stomach examination has shown that 60% of the food for the year is made up of animal matter, and 40% of vegetable matter. The animal matter is made up almost entirely of insects, most of which are injurious to crops. Ground beetles, grasshoppers, crickets, cut worms, caterpillars, wire worms, stink bugs and ants form the principal items. All of these insects are destroyed in great numbers. The vegetable food is made up of grain and weed seeds. Grain as food reaches a maximum in November, December and January.

The verdict of ranchers throughout the State obtained by a circular letter has shown that there is a wide difference of opinion as to the extent of damage caused by the meadow lark. More than one-half maintain that the meadow lark does not damage crops and is therefore not a nuisance.

Experimentation has shown that the Western meadow lark has an average capacity of two and three-fourths cubic centimeters and that the stomach contents is digested within a period of four hours, thus making the daily consumption at least three times the capacity. Young birds need very near their own weight of food daily and are fed entirely on insects.

Western meadow larks turn their attention to the insect most abundant, thereby increasing their efficiency at the time of an insect outbreak. They bear an important relation to grasshopper outbreaks, and to other insect outbreaks as well.

When the benefits conferred by the Western meadow lark are balanced with the injuries, there remains no doubt that the bird deserves protection and encouragement. Its value as a destroyer of injurious insects far exceeds its detriment as a destroyer of sprouting grain. The value of a Western meadow lark living to one dead is as five pounds of insects (mostly injurious) and one-half pound of weed seeds is to one and three-fourths pounds of grain, a considerable part of which is made up of wild oats and waste grain.

Present laws seem adequate to assure both the bird and the ranches sufficient protection.

A strong point favoring the protection of the Western meadow lark is to be found in the fact that the only real damage caused (that to sprouting grainfields) can be largely prevented by planting grain deeply and drilling instead of broadcasting, two measures highly advocated by all agricultural experiment stations as favoring larger crops.

SUGGESTIONS FOR THE PROTECTION OF CROPS.—Where losses to crops warrant protective measures, the following are proposed:

1. Plant grain deeply. It secures a better crop regardless of losses due to meadow larks. Drilled grain gives a better yield than broadcasted and is also better protected from the attack of meadow larks. (See University of California Publ., Agricultural Experiment Station, Bulletin 211, p. 278.)
2. Fields bordering pasture or uncultivated land, if sowed more heavily along such margins will assure a normal crop.
3. Meadow larks are easily frightened from a field by shooting or by a dog. As damage is limited to a short period of time, this method seems practical on small fields.
4. Under extreme conditions meadow larks may be easily reduced in numbers by the use of a shotgun.

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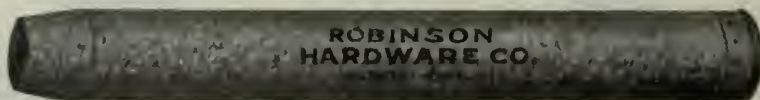
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What Germans Say About Our Fruit Selling.

We have referred to the German approval of our dealers' certificates of quality in the fruits shipped by them from this State. More specifications as to the attitude of German receivers are interesting, as given by the United States Consul in his recent report to the State Department on this subject:

A great deal has been done in California by the Dried Fruit Association of California to increase the high standard of American dried fruit. Members of this association secure certificates of inspection from qualified association inspectors, and these certificates are accepted in the German market as satisfactory. The dangers of deterioration of fruit shipped to Germany via the Tehuantepec route are such that substantially all California shippers sell on the basis of certificates of the Dried Fruit Association of California rather than upon condition of deliveries, and this method of transacting business has proved very satisfactory. Some growers have expressed the hope that German buyers would appoint

their own inspectors in California, as complaints are heard occasionally. While the Dried Fruit Association of California is carrying on its work in perfect good faith, nevertheless it is a voluntary organization of packers, so that a certificate from the association, in a sense, is merely a formal guarantee of quality from an employee of the packer himself.

The results obtained in shipping California fruit to Europe via Tehuantepec have not been altogether satisfactory. There was great congestion at the Tehuantepec terminals all through 1912, and many shippers preferred the quicker route via rail to New York in spite of higher rates. In this connection a well-known Hamburg firm writes as follows:

"It is regrettable that the American overland companies have lost a large proportion of the fruit trade to the Mexican lines, owing to their inability to meet the exceedingly low combination rates made by foreign transportation companies."

Another firm expresses itself as follows:

"We have your esteemed favor of the 13th instant, and beg to reply that we have been quite satisfied with the methods of packing and marking of American dried fruits so far, with some exceptions. In former years boxes of California dried fruits proved to be too weak, but since the bulk of the shipments are sent via Tehuantepec the boxes are strapped with iron, corners protected, and arrive in good condition.

"What we complain of is the very long journey which the fruit must undergo, especially since last season, and also the so-called overland shipments via New York. We have already drawn the attention of Mr. Rudolph Falck to this matter, as it will prevent many buyers from paying a premium of 25% per 100 pounds for overland routing if such shipments will be on the way eight or nine weeks instead of four weeks.

"The same applies to apple shipments coming from Rochester via New York, and though through bills of lading are signed for these shipments, it appears that the * * * Line had insufficient steamers in New York to take care of them, and some lots laid in New York for five or six weeks awaiting transportation, which naturally caused much loss to the importers in Germany."

Still other Hamburg importers write: "In reply to your letter of the 9th inst. we beg to say that the business in dried American fruits was fairly good. Shipments from California arrived in sound and solid condition, as the fruits were sufficiently treated and carefully packed. Only some shipments of dried apples from the Eastern States which were packed damp arrived having fermented on the way. Transportation opportunities are, of course, beyond the control of the shippers, and in this regard many wishes remained unsatisfied.

"Considering the enormous demand for cargo space, it is, however, comprehensible that the very important shipments from California could not always be reloaded satisfactorily at the intermediate stations. As, however, more favorable transportation facilities may be counted on upon the opening of the Panama canal, which is expected within the next few years, the trade appreciates the uselessness of making sharp complaints to the shipping companies.

"We repeat that, in general, the trade was not considerably influenced by these disturbances, as was the case in 1911, as an entire removal of the difficulties was not to be expected."

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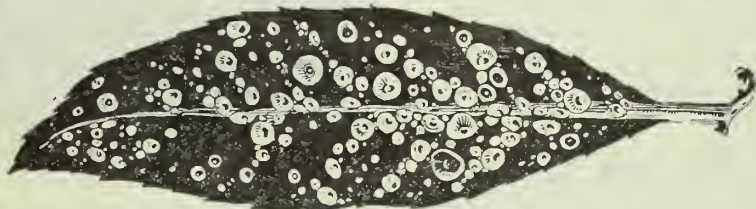
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Hanford Nurseries

CLARKSTON, WASH.

Drawer 6. AGENTS WANTED.

Rotary Ditcher and Grader.

[Written for the PACIFIC RURAL PRESS by G. W. JORY, of Marysville.]

The accompanying photograph shows a new device for which I have secured a patent. The machine is simple in construction and complete in itself, and does its own plowing as well as deposits the dirt in the ditch bank, or grade.

The elevator or carrier is a large wheel carried in a tilted position, by a traveler wheel, nearly centrally located underneath, and may be adjusted at any desired angle.

This carrier wheel has an inner and

dumped. The distance out that the dirt dumps may be varied at will and while the machine is in operation. After dumping the bottom plates are automatically closed again.

The plow is carried by the frame of the machine and is always in operative position to the carrier buckets, and may be as easily regulated in regard to depth and cut of furrow as an ordinary gang plow, and it will easily turn a 6 x 12 inch furrow, or better.

The entire machine is carried on three wheels and may be turned square around,



Jory's Rotary Ditcher and Grader.

an outer rim, the spokes extending through the inner rim to the outer rim, thereby dividing the space between these two rims into sections.

In each section, is centrally pivoted a bottom plate, thereby forming, when closed, a box for the dirt. To dump, these bottom plates simply tilt on their pivots, allowing the dirt to fall through the open space.

The inclined carrier wheel rests on ground next to the plow, which turns the dirt into the sections as the machine travels along; and it is provided with lugs, thereby giving it traction, and causes it to rotate, and the dirt is carried out to any desired point and automatically

either to right or left, and so saves a great deal of time and turning space.

There are very few wearing parts to the machine, and no gears or sprockets to wear out and cause trouble and expense, as well as taking power to operate them.

The machines of ordinary size weigh 2500 or 3000 pounds, requiring 6 or 8 horses and two men to operate, and will handle approximately 1500 yds. of dirt per day, building ditches from 4 to 20 ft. wide and 5 or 6 ft. deep with sloping banks. Larger machines will, however, be built for doing larger work. The machines are being manufactured by The Stockton Tool Works, of Stockton, Cal.

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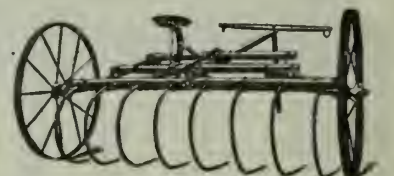
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STOCKTON, CAL.

Wells Fargo Nevada National Bank

of San Francisco,
2 Montgomery Street,
Northeast Corner Market Street.
Capital Paid up - \$6,000,000.00
Surplus and Undivided Profits \$5,000,000.00
Total \$11,000,000.00

OFFICERS:
Isaias W. Hellman President
I. W. Hellman, Jr. Vice President
F. L. Lipman Vice President
James K. Wilson Vice President
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W. McGavin Assistant Cashier
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A. D. Oliver Assistant Cashier
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Special Attention to Out of Town Accounts.
SAFE DEPOSIT VAULTS.

AGRICULTURAL REVIEW.

Crop Prospects.

A correspondent writes: "The country through Marin and Sonoma county looked mighty good to us last week. We found that the grain had sprouted well and had enough moisture to give it a good growth. The grass on the hills is not as tall as in other years at this time, but the dairy cattle have fine feed and are giving a fine flow of milk this spring. The shortage of moisture in the ground may cause the feed to dry up a little earlier, but that depends on the amount of spring rains. The apples through Sonoma county are blossoming well and promise a good crop. Apricots were somewhat damaged by frost, but peaches and other fruits have escaped. The cherry crop will be larger than usual."

The San Joaquin County Horticultural Commissioner, William Garden, gives the following for the various fruits: "Almonds, almost a complete failure; apricots, with few exceptions a failure; cherries, about one-fourth of a crop; peaches: Muirs well set in general, Albertas about two-thirds, other varieties about the same; plums (shipping) a full crop; prunes, too early to estimate, blossomed heavily; pears, a good crop; apples, looking well so far. Investigations show that the frost waves seem to have struck some orchards heavier than others and that the lower altitudes seem to have suffered worst. The indications at the present time depend much on weather conditions and they are subject to change."

Almonds from nearly all sections are reported much below normal, apricots in the south coast counties are very little less than a full crop, in the bay counties they will be short about half a crop, and in the interior also quite short. Cherries nearly everywhere are a little short, peaches somewhat below normal, averaging perhaps two-thirds of a crop, most other fruits in good condition where rain is not too scant or irrigation is practiced.

Special reports from El Dorado county state that early peaches were hurt some by the frost, but late varieties are in good shape. Pears promise a full yield. Almonds very poor. At Vacaville the prospects are good, with the exception of almonds and apricots, which were frosted in exposed locations. In Placer county peaches will average a fair crop, and cherry, pear and most plum trees are well set. With the exception of almonds and apricots, fruit will be plenty in Shasta county. Yuba county reports prospects good for bumper fruit crops, and considerable thinning will be necessary. The cherry crop there is reported exceptionally good. In Butte county, near Chico, fruit is reported in much better shape than was thought possible immediately after the frost. Almonds will be a light crop, but peaches, pears and apricots promise a normal yield. Preparations are being made at Tulare to handle a large fruit crop the coming season. More of it will be shipped green instead of dried, as in seasons past. In Fresno county the horticultural commissioner estimates that peaches will be 70% of a normal crop, plums and prunes about half, and apricots very light. Oranges and olives promise well. Around San Jacinto in Riverside county, late rains have helped grain and feed, and fair crops are expected.

Fruit Notes.

Traffic managers of the Western railroad lines have granted a lower minimum in carload fruit shipments from California. The minimum charge has been lowered from 26,000 to 24,000

LUTHER BURBANK'S SPINELESS CACTUS



4

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1

Burbank's Spineless Cactus will feed four cows per acre



ALFALFA

Alfalfa will feed one cow per acre

One acre of Luther Burbank's Spineless Cactus without irrigation will feed four cows, while one acre of alfalfa will feed but one cow yearly—certainly a story of a great saving—four to one.

Burbank's Spineless Cactus is revolutionizing the feeding of cattle, hogs and poultry. You can't afford not to know about it—to acquaint yourself with every detail, for it involves your PROFITS—means more money to you.

Luther Burbank's Spineless Cactus will grow in any country where the rainfall is three to five inches per year and where the ground does not freeze more than one inch in winter time.

Do you know that stock fed on Cactus have gone from six to eight months without a drop of water to drink because there's enough moisture in the plant itself to supply the cattle's need for water.

Do you know that demonstrations have proved that the flow of milk was increased more than 25 per cent by a cactus feed in place of an alfalfa feed.

These are not mere statements. They are proved facts. Our Burbank Spineless Cactus Book RP is full of just such valuable important details. It is one of the most interesting books any farmer, who has a mind to his profits, can read.

Don't neglect to learn all about Luther Burbank's Spineless Cactus. Don't be the last to investigate. The demand for Burbank's Spineless Cactus is very great and we advise you to buy now. Write for the Cactus Book RP and prices today. It will tell you how to get greater profits by greater savings.

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The Luther Burbank Company is the sole distributor of the Burbank Horticultural productions and from no other source can any one be positively assured of obtaining the genuine Luther Burbank Productions. Write for full information today.

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**Sole Distributor of the Burbank Horticultural Productions
Exposition Building, San Francisco**



This Seal guarantees a genuine Luther Burbank Production

pounds, making a saving in some instances of about \$23 per car.

The Sebastopol Berry Growers, Inc., has purchased the large packing house that it has occupied for years, and will at once commence the erection of a large modern pre-cooling plant.

At a meeting of the directors of the California Wine Association held at Oakland last week, it was decided to take over the Italian-Swiss Colony at Asti, Sonoma county. The capital stock of the association is to be increased from \$10,000,000 to \$20,000,000, and the bonded indebtedness from \$2,000,000 to \$7,000,000, to cover the absorption of the Asti colony.

The Terra Bella, Tulare county, Fruit Growers' Association is a new incorporation which proposes to build a fruit cannery at that place.

(Continued on Page 506.)

FARM A FARM THAT PAYS TO FARM

River Sediment Soil

Rivergarden Farms are river sediment, 25 feet deep. The soil is richer, deeper and more fertile than in any large body of land in California. Located on the Sacramento River above Woodland; 21 miles along the River, and one mile wide; all river sediment soil.

ALFALFA

When you can cut twelve tons to the acre and feed it to cows and hogs, near a great market, with river and rail transportation you have land that pays to farm. Rivergarden Farms are sold on easy terms so the crops will pay for them. Write us for full information.

STINE & KENDRICK

Dept. L 23 Montgomery Street

San Francisco

Organization of Swine Breeders.

[By OUR ASSOCIATE EDITOR.]

The hog men of California have organized to take advantage of the possibilities of the State in this industry. The California Swine Breeders Association was started on its career at the University Farm at Davis, April 17, at a large meeting in which were represented all breeds, all sections and the market hog business as well as the pure-bred business.

The officers are: George Murphy, president; A. M. Henry, vice-president; J. I. Thompson, secretary-treasurer; H. O. Davis, J. R. Fraser, M. Bassett and H. F. Lockhardt, directors. The dues are to be \$1 per year, and meetings are to be held annually, probably at the University Farm in the fall sometime after the State Fair. Every person connected with the swine industry in eligible to membership and the activities of the association will benefit the whole industry.

SUCH GREAT POSSIBILITIES.—The great possibilities confronting this industry can hardly be appreciated even after the facts brought forward at this gathering are seen. The profits from hogs are and have been one of the talking points for boosters from the start. Yet there are about \$35,000,000 worth of meat products, the far larger part being pork products, brought across the Rockies every year. Putting it in another way, only about a third of the pork consumed in California is produced here, and if there is money in raising those that are raised it is difficult to see why there would not be money in raising three times as many. Naturally, the reason these and more than these are not raised is that, as conducted on many farms, the profits of production were too small and the hog gave way to some other crop. It rests now with the Association and its members to see that the profit does come, by getting the right kind of stock there, the right methods, the right system of marketing. Those three points clearly show what the association wants to do and the great openings for it.

And besides this work in improving commercial hog production within the State, there is the pure-bred business. For months practically every trans-Pacific steamer has taken pure-bred stock to

Hawaii, the Philippines, Japan or China. D. O. Lively in speaking of the Panama Pacific Exposition and other matters told how one Japanese buyer alone had spent \$75,000 in Missouri for pure-bred stock. As far as the hog business is concerned it is the intention to get this and that of western Latin America all for California and the Pacific Coast.

And just as a hint of what is being accomplished, it can be stated that there are 67 Californians on the books of the Berkshire Association, with heavy representation also for the Poland-Chinas and Durocs. Besides this there are several herds of high standing of Hampshires, Tamworths and minor breeds. For breeders and stock California has a good start.

OREGON'S EXAMPLE.—An example of what the association might accomplish is given in the account by D. O. Lively, of the recent development in the livestock industry in Oregon, especially as far as swine is concerned, that has resulted from education and a change of methods. The country there had been boosted as a great apple country, livestock was a minor proposition all the way along, and hogs it was said could not be successfully produced because Oregon was not a corn country. That is what they say about California, but corn does well in California and did in Oregon.

The change came through a campaign of education by the promoters of the Portland Union Stockyards Company who had to get some hogs raised in order to get business in the yards. It was demonstrated that with alfalfa, which was very successfully grown, barley or other pasture, and a little barley or some other grain that Oregon could not only produce first class pork, but could actually produce it cheaper than in the corn and hog belt of the Middle West. This was not only demonstrated, but it was adopted, and in the three Northwest States in 1912 there were \$12,000,000 worth more hogs produced than in 1911. Better stock, better methods and better marketing and the job is done.

And at this meeting J. I. Thompson of the University Farm School, secretary-treasurer of the association, told how successful the Farm had been in raising and marketing two lots of hogs. Prof. Hayes told of the way that the University of California is solving the great problem of hog cholera, the greatest single problem by far before the producer, the thing that is doing more than anything else to discourage pork production all over the country. The first subject will be discussed elsewhere.

CONSTITUTION.—The constitution itself will show the method of organization. It deserves the support of every man who grows hogs, pure-bred or not. Membership can be obtained by sending dues to the secretary, J. I. Thompson, University Farm, Davis. The constitution itself is as follows.

TITLE.—The name of the association shall be The California Swine Breeder's Association.

OBJECTS.—The objects of this association shall be to secure the co-operation of farmers and parties engaged in the raising of market or pure bred swine; to promote the business interests of its members; to procure and distribute the scientific and practical knowledge in all things relating to swine raising.

OFFICERS.—The officers of this association shall consist of a President, Vice-President, Secretary-Treasurer and a Board of Directors, consisting of the President, Vice-President, Secretary-Treasurer, who with four additional directors, all to be elected at each annual meeting.

America's Leading Horse Importers

Kansas City, Missouri

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We have just received at our stables in Oakland a large importation of prize winning Percherons. These stallions comprise nearly all of the leading winners at the recent French shows, every animal at maturity weighing much over a ton, and they are strictly stallions of the well known McLaughlin type. We import more, sell more, and therefore can sell cheaper than anybody else.

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Stables: At Cor. 47th and Salem, in Emeryville, Oakland, Cal.

A. C. RUBY, Portland, Ore.

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THE LARGEST HORSE IMPORTERS ON THE PACIFIC COAST



PERCHERON, BELGIAN, ENGLISH SHIRE, CLYDESDALE, HACKNEYS AND COACH STALLIONS AND MARES.

We sell more imported horses than all other firms on the Coast because we are direct importers and give a four-year guarantee which is good right at home. We have on hand at all times the largest and best lot of heavy draft stallions and mares, both American bred and imported, to be found any place in the West. If you are in the market for a high-class stallion or mare, don't fail to give us a call, as we can sell you more genuine horse for the money than any other importer in the business.

Address:

RUBY & BOWERS, Davis, Cal.

We Have Imported More Horses Than Any Other Firm in the United States During the Last Year.

References: American Natl. Bank, Pendleton, Ore. Merchants Natl. Bank, Portland, Ore. First State Savings Bank, Marcellus, Mich. Bank of Yolo, Davis, Cal.

WORLD'S RECORD HOLSTEINS



Aralia De Kol.

Aralia De Kol, one year.....28,065.9 lbs. milk
Sadle De Kol Burke, six months 18,285.8 lbs. milk

Place at the head of your herd a bull strong in the blood of these cows.

We invite you to inspect our herd and will cheerfully give you further information and prices.

A. W. MORRIS & SONS,
Woodland, Cal.

SwineLand
Tamworth
Duroc-Jersey
Berkshire Swine

- 2 Gold Medals
- 2 Silver Medals
- 4 First Premiums
- 2 Second Premiums

at the

California State Fair

We are booking orders for Spring pigs for May and June delivery.

SWINELAND FARM
Box 57, Yuba City, Cal.

BERKSHIRES

Our herd is now one of the best in the State, being rich in Silvertip, Black Robinhood, Longfellow, Empress and Masterpiece Strains.

Prices reasonable, satisfaction sure. Correspondence solicited from interested parties.

OAK GROVE DAIRY FARM,
Woodland, Cal.

CALVES WITHOUT MILK

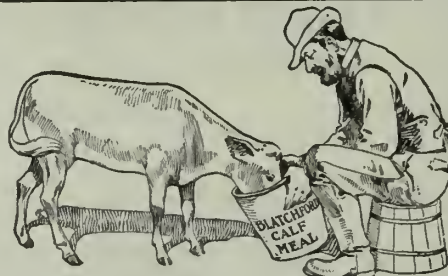
cost only half as much as the milk-raised calves. Increase your profit by using

BLATCHFORD'S CALF MEAL

the perfect milk substitute—the best since 1800.

Write today for free book, "How to Raise Calves." Your name and address on a post-card is enough.

Coulson Poultry & Stock Food Co.
Incorporated
PETALUMA, CAL.



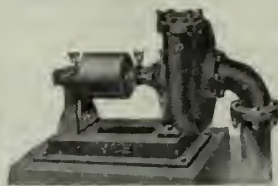
PIONEER CENTRIFUGAL PUMPS

Improved machinery and methods enable us to sell you this pump for less than you can buy any other make.

Our retail prices are less than our competitors' wholesale prices.

We guarantee our pumps the equal in quality and capacity of any. Live agents wanted. Write for circular and prices.

PEERLESS IRON WORKS, Sacramento, Cal.
Mention Rural Press.



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EL DORADO COCOANUT OIL CAKE

for Milk Cows and Chickens and Young Pigs and Hogs. Cheapest food in the market today. If your dealer doesn't carry it, address

EL DORADO OIL WORKS,

149 CALIFORNIA STREET,

SAN FRANCISCO.

MEMBERSHIP.—All persons interested in the raising or marketing of swine are eligible for membership in this association. The fees shall be \$1 per year payable to the Secretary-Treasurer at the time of the annual meeting.

ANNUAL MEETINGS.—The regular annual meetings shall occur at such time and place as may be designated by the Board of Directors, or by a majority vote of the association, at the annual meeting.

AMENDMENTS.—This Constitution or By-Laws may be altered or amended at any regular meeting by two-thirds vote of the paid members present.

BY-LAWS.—The officers of this association shall be elected at the annual meeting, by ballot, to serve one year, or until their successors have been elected.

No member shall be allowed to participate in the election of officers who has not paid his annual dues in advance.

DUTIES OF THE PRESIDENT.—The President shall preside at all meetings of the association.

He shall have the Secretary call all special meetings.

He shall appoint all special committees when not elected by the association, and sign all official documents.

DUTIES OF THE VICE-PRESIDENT.—The Vice-President shall preside at all meetings in the absence of the President, and perform the duties assigned to that office.

DUTIES OF THE SECRETARY-TREASURER.—

The Secretary-Treasurer shall keep full and accurate minutes of all acts and proceedings of the meetings, conduct all correspondence, receive all funds, collect all money due, shall pay and preserve all vouchers for bills and expense of the association when so directed by the Board of Directors.

He shall notify all members of the time, place and object of all regular meetings, at least one week before the time of meeting.

He shall turn over to his successor all books, papers or money or other property belonging to the association, and shall make report at the annual meeting.

He shall receive for his services such sum as the Board of Directors may from time to time designate.

DUTIES OF THE BOARD OF DIRECTORS.—It shall have the management and control of the business of the association, audit the claims against the association, audit the books of the Secretary-Treasurer and perform such other duties as the association may desire. The majority of the Board of Directors shall constitute a quorum.

COMMITTEE ON RESOLUTIONS.—The President shall at the annual meeting appoint a committee of five whose duties shall be to draft resolutions and to present them at the next annual meeting.

EXPENSES AND LIABILITIES.—Necessary expenses that may be incurred, with the approval of the Board of Directors, shall be binding on the whole association and paid from the funds of the treasury.

Should there not be sufficient funds in the treasury the Board of Directors may assess each member pro rata and collect such money at once; provided, however, that such assessment shall not exceed one dollar (\$1) in any one year, without the unanimous consent of the association.

ORDER OF BUSINESS.—Robert's Rules of Order shall be adopted as a standard authority, when not in conflict with the by-laws.

STOCK FATTENING EXPERIMENTS.

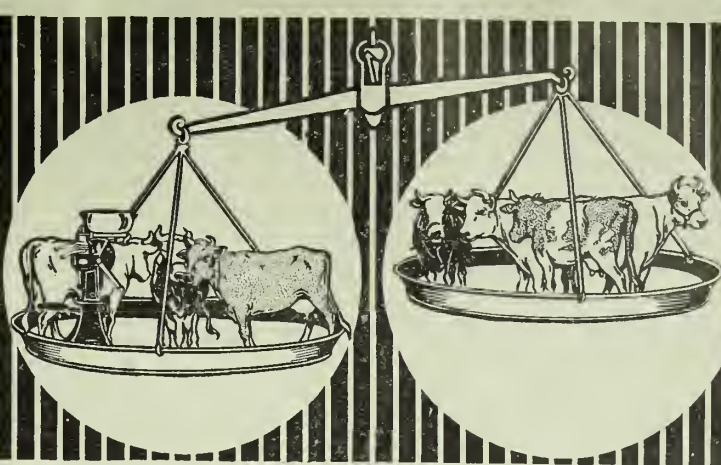
Important experiments in the feeding of stock are to be carried on at the Union branch experiment station of the Oregon Agricultural College. For this purpose a tract of 300 acres has just been set aside, and as rapidly as possible it will be put into alfalfa.

At present it will not support a large number of animals under experiment, but when the tract is finally developed it will provide for the fattening off of 250 cattle and 2,500 lambs each year.

It is expected that this will develop a line of work which will be of great value to the live stock industry. It will enable the experts to handle a sufficiently large number of animals for a long enough period to make the results of the investigations certain beyond question of the influence of season or the individual animal.

It is planned to start shortly a series of experiments, to cover three or four years, comparing the value in fattening of three methods of feeding. In one alfalfa alone will be fed; in the second, alfalfa with about 5 lbs. of grain a day; and in the third alfalfa with, toward the end of the fattening period, 10 or 12 lbs. of grain a day. With 50 or 100 cattle in each lot upon which an experiment is tried, and with repetition of the test for several years, Prof. E. L. Potter believes he can secure data which will be absolutely reliable. Cattle and sheep will be made the main features, but hogs and other stock will be included incidentally.

In Tulare plans have been made for the largest hog ranch in the world, by Dr. Charles W. Bryson, of Los Angeles, to be run on a 16,000-acre tract near Angiola. H. E. Whipple will be manager.



Three cows and a DE LAVAL CREAM SEPARATOR

will make more money than
four cows with gravity setting

Thousands upon thousands of cow owners have already proved this statement; any experienced dairyman will verify it for you.

With such a big saving it is hard to understand why any cow owner should try to get along without a De Laval Cream Separator.

If you are selling cream or making butter, and have no separator, or else an inferior machine, we know if we could put a De Laval on your place we would be doing you a personal favor.

If you haven't a separator don't make the mistake of starting with a "cheap" or inferior machine. When you do buy a separator—as soon or later you surely will—be sure to get the best—the De Laval.

Remember, you can't make money by trying to save money in the purchase price of a cream separator. A De Laval costs only a little more than the cheapest and will save you twice as much and last five to ten times as long as other separators.

DE LAVAL DAIRY SUPPLY COMPANY

165 BROADWAY
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101 DRUMM STREET
SAN FRANCISCO

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SEATTLE

Horse Owners! Use

GOMBAULT'S

Caustic Balsam

A Safe Speedy and Positive Cure

The Safest, Best BLISTER ever used. Takes the place of all liniments for mild or severe action. Removes Bunches or Blemishes from Horses and Cattle. SUPERSEDES ALL CAUTERY OR FIRING. Impossible to produce scar or blemish. Every bottle sold is warranted to give satisfaction. Price \$1.50 per bottle. Sold by druggists, or sent by express, charges paid, with full directions for its use. Send for descriptive circular. THE LAWRENCE-WILLIAMS CO., Cleveland O.

Write Your Name On The COW

Mail it to us today and we will explain in detail just what the

Kuhn California Project

has to offer. This fertile tract will produce anything. It has towns, schools, churches, fine roads and transportation facilities and an unlimited water supply.

10 Years to Pay for Land

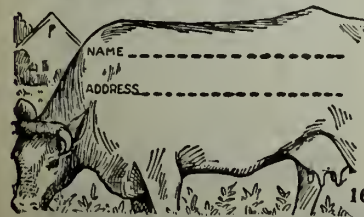
No Second Payment for 4 Years

Price of land is low and the terms of payment are easy. If you are interested in

Developed Alfalfa Land

We have some choice tracts for sale. Mail us this coupon now while it is before you.

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1st Prize Ram Lamb, Omaha, 1911

SAN RAMON SHROPSHIRE FLOCK

Purebred and Registered Rams and Ewes
For Sale. Individual or Carload Lots.

PRIZES WON BY FLOCK IN 1912.

CALIFORNIA STATE FAIR, SACRAMENTO—Six firsts, four seconds, champion ram and ewe.

OREGON STATE FAIR, SALEM—Two firsts, five seconds, champion ram and ewe.

INTER-STATE FAIR, SPOKANE, WASHINGTON—five firsts, three seconds, champion ewe.

INTER-MOUNTAIN FAIR, BOISE, IDAHO—Eleven firsts and seconds, sweepstakes over all breeds, champion ram first and second, champion ewe first and second, and first for flock of one ram and five ewes of any age.

BISHOP BROS.,

San Ramon, Contra Costa County.

WATER PIPE

Hot asphaltum dipped, new threads and couplings; 2nd hand in name only. Prices far below your expectations. Screw casing and standard pipe fittings and valves.

THE EXCLUSIVE PIPE HOUSE.

PACIFIC PIPE CO.

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Cutter's Anthrax and Blackleg Vaccines

are given the preference by 80 per cent of California stockmen because they give better results, than others do.

Write for Prices, Testimonials and our New Booklet on Anthrax and Blackleg.

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HOWARD CATTLE CO.

BREEDERS AND IMPORTERS
SHROPSHIRE SHEEP
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BERKSHIRE HOGS
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PACIFIC SILO



a Concrete Silo with all modern improvements. As permanent as the ground upon which it stands. Especially constructed to meet the requirements of the Pacific Coast States.

CONTINUOUS OPEN DOOR FRONT

Perfect System of Ventilation and Drainage. The most economical silo to build and to use. Write for "Catalog C" to DELTA CONSTRUCTION CO., P. O. Box 908. Sacramento, Cal.

HOLSTEIN BULLS

3 past Yearlings from Tested Dams.

HEENAN & WELDON,
Sacramento, Cal.

Box 962.

America Shy on Beef.

This fact, which we have been continually urging as a warrant for the expansion of our cattle interests, is becoming more sharply apparent.

WE ARE SELLING LESS.—The decrease in the meat supply available for exportation is sharply illustrated by the February export figures, just compiled by the Statistical Division of the Bureau of Foreign and Domestic Commerce. They show the number of cattle exported in the eight months ending with February, 1913, but 12,656 head, against 270,219 head in the corresponding months of 1907, and the quantity of fresh beef exported but 4,709,047 pounds, against 175,806,649 pounds in the corresponding months of 1907. That this shortage in the exportations is due in part at least to an actual reduction in the number of cattle in the United States is evidenced by the fact that the total number of cattle on farms, according to figures of the Department of Agriculture, was, on January 1, 1913, but 56,527,000, against 72,534,000 on January 1, 1907.

WE ARE BUYING MORE.—Still another evidence of the demand in the United States for an increase in its cattle supply is found in the figures of the Department of Commerce, which show an enormous increase in the importation of cattle, the number imported into the United States in the eight months ending with February, 1913, being 222,000 head, against 12,500 head in the corresponding months of 1907. Thus, while the number of cattle on farms has fallen from 72,500,000 to 56,500,000 in the six-year period in question, the number has fallen from 270,000 head to 12,000; the quantity of fresh beef exported has fallen from 176,000,000 pounds to 4,750,000 pounds, and the number of cattle imported has increased from 12,500 head 222,000 head, all of these figures of imports and exports being for the eight months' period ending with February of the years named.

AUSTRALIANS IN THE GAME.—It is now claimed that millions of pounds of Australian beef, mutton, pork and butter shipped to the United States in refrigerator steamships are soon to flood the markets of San Francisco and other American cities and lower the present high prices of meats to the consumer.

The Union Steamship Company has announced in San Francisco that an order has just been placed in England for the construction of four large refrigerator carriers which are to be used for transporting frozen meats from Australia to San Francisco.

Louis Schweitzer, of Schweitzer & Co. of San Francisco, sailed for Sydney on the liner Tahiti four weeks ago and is now in Australia endeavoring to close a contract for all of the available refrigerating space on the three liners of the Union company now operating to this city.

AMERICANS GOING ABROAD TO FARM.—Expecting at least a lowering of the present tariff on meats admitted into this country, Swift, Armour & Co. are now preparing for the construction of a mammoth slaughter-house and freezing plant at Brisbane, Australia, from which they will ship to the United States thousands of frozen sheep, hogs, and cattle weekly.

In addition to the meats, the American company also will handle butter, which has been shipped to the markets of Great Britain for many years and has recently practically driven out the popular Danish commodity as a competitor.

According to P. E. Quinn, special representative of the government of New South Wales in this city, hundreds of the cattle kings of Texas and other Southern and Western States have signified their intention of going to Northern Australia and going into the cattle business upon a bigger scale than ever before attempted.

BETTER DO IT AT HOME.—We do not know how much of this may be realized,

but it is clear enough that we ought to be growing more meat right here and be quick about it.

THE ARMY WAY WITH HALTER-PULLERS.

To the Editor: In a recent issue of your paper a subscriber asked how to break a horse from pulling back in the stall when approached for any purpose. The following is a method in use in the cavalry service of the United States army.

Take the usual rope out of halter ring and replace it with a long rope, one end of which is tied to manger or tie to post, pass the other end through the halter ring down between the horse's front legs, and tie it around his body well back close to hind quarters. The loop around the body should not be tight. The whole length of rope should be so adjusted that the length of the part from the tie post to halter ring is the usual length of halter rope.

After rope is adjusted encourage the horse to pull back—at first he will set back as usual but the pain caused by the tightening of the rope will cause him to jump forward. He will soon learn that it is foolish to punish himself by pulling back.

In a very bad case it might be well to leave the rope on for a week.—THURMAN H. BANE, Lieut. of Cavalry, U. S. Army, Fort Hancock, N. J.

SAXTON'S WAY WITH A HALTER-PULLER.

To the Editor: Saxton's way to stop a horse from pulling back, is to put on a good halter, run the rope through the hole in the manger but do not tie it there, but tie it to the horse's front left foot. Then either the foot or the head of the horse must be at the manger, every minute. If the horse pulls back, his foot comes up to the manger, and just the minute his head comes six inches nearer to the manger, his foot will drop six

Be Safe!

Don't take chances with spavin, splint, curb, ringbone, bony growths, swellings or any form of lameness. Use the old reliable remedy—

KENDALL'S Spavin Cure

Its power is testified to by thousands of users. At drugists \$1 a bottle; 6 for \$6. Ask your druggist for book, "Treatise on the Horse." Write Dr. B. J. Kendall Co., Enosburg Falls, Vt.



SHROPSHIRE

Pure Bred and Registered

For 1912:

140 Head Yearling Rams
150 Head Ram Lambs

Enterprise Stock Farm

H. P. EAKLE, Jr. Woodland, Cal.

Joy Bean MEAL

PROTEIN EXCEEDING 44%

For Cattle, Poultry and all Farm Animals

Will double your milk, cream and egg supply. Write for booklet "SYSTEMATIC FEEDING AND THE VALUE OF JOY BEAN MEAL."

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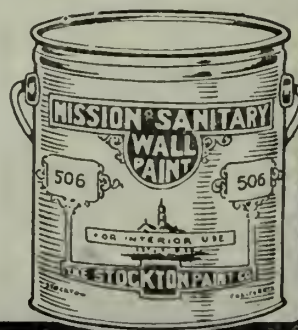
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inches nearer the floor. The horse will soon get wise.

Do not tie a horse this way at night as he could not lie down.

I have traveled in 40 different States and countries as a professional all around horse expert, and can stop any habit in the world ever known to horse or mule.—EUGENE SEXTON, globe trotter and expert horseman.

ANOTHER HALTER-PULLING DEVICE.

To the Editor: To stop a horse from pulling back, I have found this good, and not injurious: Double back the long hair of the tail, run the end of a half inch rope through the loop, and half hitch it securely. Run the other end of the rope between the legs and through halter ring and tie. When he sets back he gets a surprise and will not get hurt nor skinned.—S. E. NILL, R. 8., Fresno.

ANOTHER HALTER PULLER.

To the Editor: I see in a March issue a request for a way to stop a horse from pulling back. I have found the following method very effective for halter breaking colts or horses that pull back or won't lead.

Take a strong rope and put it around the horse's legs just above the hocks, then up to about the middle of the back, and tie a knot and pass one end on one side of neck through halter. The other end on the other side through halter, but do not tie to halter, let rope be loose, tie it to manger or any other strong thing. The horse cannot hurt himself, but if he sets back sudden it will pull his hind legs from under him. A few times setting back will cure him of the habit.—WALTER P. ROGERS, Richey, Cal.

CASTRATION OF COLT.

To the Editor: Which is the correct and best way to castrate a yearling colt, with an emasculator or a blade, and when is the proper time?—E. F. B., Volta.

ANSWER BY DR. EDWARD J. CREELY.

An emasculator is the only instrument to use in castrating. The object in using any instrument is to prevent a hemorrhage, and nothing works with so much certainty and quickness. I would recommend the A. Hausman and Dunn emasculator. The proper time is when the weather is mild, the grass at its best, and the colt in good condition.

San Francisco Veterinary College.

HOG NEEDING LIME.

To the Editor: Have a hog about nine months old which has always been well fed and kept, and in good flesh. The pig was kept in a pen until a short time ago when it was turned in pasture. At the end of one day it was found near a watering trough unable to get up. The pig does not appear to be sick at all and eats whenever food is put before it, only seems stiff and can walk only on its knees. All four legs are stiffened alike. What is the cause and what could be prescribed for it?—R. E. O., Bakersfield.

ANSWER BY DR. E. J. CREELY.

Would say that the symptoms, as set forth, are rather brief to make a positive diagnosis, however, the inability to rise and still a good appetite on the part of the animal tends to point to a bone dis-

SHEEP.

CHAS. KIMBLE, Breeder and Importer of Rambouillet. Hanford, Cal.

MISCELLANEOUS.

SHORT-HORNS AND BERKSHIRES—Count Avon, International grand champion, heads herd. C. F. Curtiss, Ames, Iowa.

JERSEY CATTLE, DUROC JERSEY SWINE. Mossdale Farm. J. E. Thorp, Stockton, Cal.

ease known as Osteo Rachitis. The condition is considered due to a lack of calcium salts in the bone. A line of treatment in the nature of supplying these materials might give good results.

Give lime water in 2 oz. doses twice daily, also the following:

Pulv. dried iron sulphate 4 oz.
Soda bi-carbonate 8 oz.
Soda salicylate 2 drachms
Pulv. Aniseed 4 oz.

Mix and give ½ teaspoonful twice daily.

San Francisco Veterinary College.

ALFALFA SILAGE FOR HOGS.

To the Editor: I would like to ask you if you have any data or information as to the results from feeding alfalfa silage to hogs. You, as well as myself, know that hogs thrive well and almost in a perfect manner on green alfalfa during the growing season. The thought has occurred to me that if we could continue that succulent green feed during the fall, winter and early spring months, it would be very cheap feed for hogs to grow on together with a little grain, but I would like to hear from you on the subject or from some of your readers who have tried the feeding of alfalfa silage. Any information that I can get on the subject would be highly appreciated.—E. C. Burlingame, Walla Walla, Washington.

There very probably have been experiments with alfalfa silage as a hog feed and reports made regarding them, but as it happens we have no data at hand on the subject. It would appear that this would be very profitable feed and we also would like to hear from anyone who has fed alfalfa silage to his hogs.

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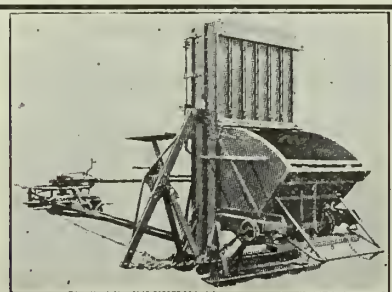
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Chick Troubles and How to Prevent.

[Written for the PACIFIC RURAL PRESS by
SUSAN SWAYSGOOD.]

Prevention is always better than cure, but when we have failed to prevent, then it is up to us to look for a cure. This is the time when little chicks are usually attacked with diarrhoea. Some people claim that there are only two causes of white diarrhoea, one, a bacillary form due to a germ, and one to a protozon.

The bacillary form is accompanied by droopy wings, ruffled feathers, the tendency to huddle up together, and with very poor appetite.

In incubator chicks, this form of diarrhoea is mostly caused by too early feeding, chilling in the early stages of chickhood and from improper feeding and watering. Then again it may be caused through the parent stock, but in most cases it comes from one or more of the first named causes.

Now the fact is that any form of this disease may be termed "white diarrhoea," because there is nearly always a pasty sticky discharge, and if chicks are left hungry, or fed moist food where the droppings lie, from even one chick so affected, it will spread to others.

PREVENTION.—To prevent it the chicks should never be fed under 48 hours at least, and longer is better. The fast gives the chick time to absorb the yolk, and until that is absorbed the digestive organs are not in condition to pass any food along that is taken through the mouth or bill.

The next care should be in removing the chicks from incubator to brooder for a chill at this time is almost certain to start a diarrhoea.

The next care must be in the feeding, and if chicks are fed right for ten days they will stand most any kind of treatment after. There should never be too much feed given at any one time, just the feed that they will dispose of while it is clean and fresh, then let them run around and hustle a little. For the first feed a little rolled oats is as good as anything, the thing is to avoid too much soft feed and any feed that is too stimulating.

I find that rolled oats in small quantities are good, but if fed too freely they act on the bowels as a laxative, so to every feed of oats or other soft feed let there be one of good dry chick feed.

In regard to the water, it may seem a little trouble, but it is a sure preventative to boil all water for the first few days. When boiling for breakfast set some aside to cool while you get the breakfast over, it will be just about the right temperature by then to give the chicks.

Now all these preventatives will not help the person that has already got this trouble started with his chicks; I never yet used medicine for it, though sometimes it does good. My first thought is to get the chicks on new ground, keep all moist soft feed from them, and feed nothing but dry grain and lettuce or alfalfa, boiling all the water they drink, and keep some granulated charcoal before them.

But I have not had any trouble along this line for several years, and the last case I had was the other form of diarrhoea, the kind called protozon.

INHERITED DIARRHOEA.—And this is the form of diarrhoea that really is caused, or we might say, inherited from the parent stock. In this form of diarrhoea the chicks do not commence to die until they are about ten days old and after they begin it is good-bye chicks, for no earthly remedies that I ever found could keep them in this vale of tears. I never had but the one experience and never want another, for it is too aggravating to

hatch and care for chicks until 10 or 20 days old, and then watch them drop over at the rate of five to ten a day.

In this case I had hired a man to hatch me 100 chicks from his own eggs, he had just taken off a hatch himself and they were fine looking chicks, so he went to work and set the eggs for me as soon as he had enough. When his chicks were about ten days old he came to me for advice saying his chicks were dying. But everything I suggested he had done, except to move them to new land, which he did at once. But still the death rate was from five to ten a day and that man did all that any mortal man could do to save those chicks in the way of cleanliness and care, but out of the 100 chicks he only saved 15, and that was really 15 too many.

Not being satisfied as to the cause of the trouble I took the 100 chicks ordered when they came off, and as far as sanitary conditions went no chicks were ever better provided for. All went well for two weeks, and I was just about to crow over my neighbor when the first chick died. And from first to last was just another two weeks for when they had once fairly started I did not sit up nights to care for them, preferring to let them all die and be done with such stuff, and they did die to the last one.

Now mind the parent stock were not diseased, I saw them and knew that they were perfectly healthy and yet the chicks had contracted the trouble from them. My neighbor either could not, or would not believe what I told him as to the real underlying cause of this loss. But being of an investigating turn of mind he set about making enquiries from all the experts in the country.

FORCING THE CAUSE.—He wrote to the Conkey company; the Cyphers company, to Dr. Priuce, T. Woods, and several others, and very answer he got tallied with what I told him, namely, that the trouble was in the feeding of the hens and not from any diseased condition. He had been crowding his hens to make them lay, keeping a dry mash before them all the time and feeding moist mash occasionally. I forget what quantity of beef scrap he gave but it was out of all proportion to what hens should have been fed that were laying eggs for hatching. When the chicks hatched they were little balls of fluff, just as light as air, consequently there was nothing vital to fall back on. This form of diarrhoea is far more prevalent than the other and it is the easiest thing in the world to prevent, simply by feeding the hens a more natural non-stimulating diet and being satisfied with fewer eggs.

A writer in "Poultry Culture" claims that by using dilutions of bi-chloride of mercury as an intestinal antiseptic he can cure it.

For myself I would not want to try such strong remedies, but would rather use something milder. Dr. Prince T. Woods recommends the Homeopathic mercury bi-chloride. He says "obtain from any homeopathic physician or druggist some tablets of mercury bi-chloride, 1-1,000 of a grain drug strength each, and dissolve ten of these in a pint of water, feed chicks lightly on boiled rice sprinkled with cinnamon and keep clean.

All Homeopathic medicines are much milder than the crude drugs, therefore, much safer, and anyone can feel safe in using this remedy if in need of one, because Dr. Prince is about the best poultry expert in the United States.

COLD.—As the weather conditions are unsettled, it is best to keep an eye out for the first symptoms of cold. Small chicks that run around and seek

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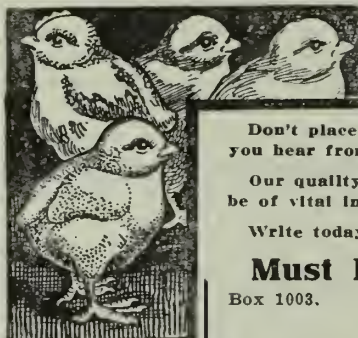
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A few choice cockerels and pullets left. Eggs for hatching after January 1st. JAS. M. MONTGOMERY, 4360 Fleming Ave., Oakland, Cal.

PATENTS

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DEWEY, STRONG & CO., 911-916 Crocker Building, San Francisco. Established 1860.

shelter in all kinds of places are very likely to get a little cold. The first thing to do is to put some antiseptic in the drinking water; very often a dose or two of some simple remedy will stop the trouble. It is well to remember that all neglected colds are liable to turn into roup. The cheapest and best cure for colds is a dose of coal oil in a warm mash at night when the chicks are going to bed. Allow, say a teaspoonful for each chick that is over a month old, and give the mash warm, next morning there will be no trace of a cold. Permanganate of potash is both antiseptic and alternative, and astringent. Make the drinking water slightly pink with it for a day or two and then quit as too much is not good. Or some of the disinfectants on the market may be used with good results, but in any case runs must be kept clean and all decayed matter cleaned up for filth is one of the best aids to the growth of disease germs and the worst enemy to health.

Cleanliness is the great preventative of all poultry troubles and a great number of human ills may be entirely avoided by the observing of sanitary rules.

KEEPING UP WITH THE FOWL TICK

The fowl tick is a serious problem in some of the interior valleys of California as our columns from time to time have shown. A full exposition of the past has just been made by F. C. Bishop entomological assistant of the U. S. Department of Agriculture from which we take the following:

When chickens are found to be suffering from the attack of the tick they should be removed immediately from the house in which the ticks occur. It is possible to destroy many of the larvae which are attached to the bird, but a rule it is sufficient to shut the affected chicken up and allow the larvae to become engorged and drop off. In case chickens become very weak from attack before the trouble is located it is advisable to apply kerosene and lard to the under side of the wings and breasts in order to destroy some of the larvae already attached. Practically all of the seed ticks on the chickens may be destroyed by submerging them in one of the creosote dips, mixed with water in the proportion of 1 to 10. Plunging infested fowls into gasoline has been found to destroy every tick attached to them, but this treatment is too harsh on the host to be recommended. In general, dipping of the birds is inadvisable, as that treatment is rather severe, and usually if the chickens are kept from further infestations they soon recover from the attack.

The chicken tick has been found to be one of the most difficult forms of animal life to destroy. It is able to survive applications which would kill practically any form of insect life. Insect powder, kerosene emulsions, and creosote dips used at ordinary strength and fumigation with such poisonous substances as hydrocyanic-acid gas are entirely inadequate to destroy the pest. On account of the ability of the ticks to crawl far into the narrow cracks it is practically impossible to strike all of them with any substance applied. This necessitates the repetition of the treatment at intervals of a week or 10 days, until the tick is brought well under control.

Numerous devices have been used or advocated for protecting chickens from tick attack. Among the contrivances for isolating the roosts may be mentioned wrapping the ends of the poles in waste or cotton soaked in petroleum and supporting the roosts by means of rods running through cups filled with kerosene or other deterrent material. If these methods are employed for protecting the poultry, care should be taken to keep the repellent

substances fresh and not to allow the dust to accumulate on the top. In any event the roosts should be smooth and free from bark and cracks so as not to furnish hiding places for the ticks. They should also be arranged so as to be easily removed to permit cleaning the house and applying petroleum or creosote around the ends of the roosts and other places where the ticks are most apt to hide. Gasoline torches have been used in destroying ticks with some success. This method is very effective in eradicating the pest from metal buildings called "tick-proof houses." A very simple and inexpensive method of protecting fowls from the tick is to suspend the roosts by means of small wires from the ceiling. Wires should also be run from the roost to the side of the building in order to prevent the framework from touching at any point. This

arrangement in various forms is **being** used by a few chicken raisers in many localities, and in most cases with marked success. The method is inexpensive, can be adapted to any kind of chicken house, and requires only sufficient attention to make certain that the roosts and roost frames themselves do not become infested.

As has been stated, the longevity of this species is so great that this method alone cannot be relied upon to kill out the ticks already in the building, as a few of them are certain to become engorged on setting or laying hens, or on chickens which remain on the ground, and thus keep the infestation alive. In view of these facts it is recommended that along with the suspension of the perches on wires, spraying or mopping with petroleum or creosote be practiced.



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Agricultural Review.

(Continued From Page 499.)

Quite a heavy planting of deciduous fruit trees has been completed this season near Lindsay. Olive trees were in especial demand. Owing to scarcity of citrus trees very little new orange or lemon acreage is being set out in that district.

Reports from Fresno state that the California Raisin Association is figuring with the packers there to handle for them the holdover 1912 crop as well as the 1913 tonnage of raisins.

A bill has been introduced in Congress to prohibit the importation into the United States of all citrus fruits infested with "red rust." This bill, if it passes, will bar out oranges from Spain.

At a meeting of the California Apple Show directors this week it was decided to hold the fourth annual apple exhibit at Watsonville in October. The sum of \$5000 is to be raised by July 1 for publicity purposes.

The first boxes of cherries for the season were shipped from Vacaville last week and soon pony refrigerators will be in use. The crop of the Sacramento river district is about two weeks late.

Apricots and peaches are reported as being in fine condition in the Hemet valley. A great deal of thinning will be necessary to get good sizes. Owing to heavy planting in that section in recent years the crop will make 2500 tons of 'cots and 2000 tons of peaches this season. Prices are expected to open at \$30 for 'cots and a little higher for peaches.

General Agriculture.

A \$50,000 alfalfa land company has been organized at Lindsay.

There will be Farmers' Institutes as follows: Moorpark, May 17; Templeton, May 19; Arroyo Grande, May 20; Nipomo, May 21; Santa Maria, May 22; Los Alamos, May 23. These meetings will be in charge of J. B. Neff.

Congressman Raker of California has introduced in Congress a bill appropriating \$200,000 to cover the expense of a series of thorough and elaborate investigations and experiments for the purpose of devising and perfecting a system of frost prevention in the citrus and deciduous fruit regions.

The grain crop in Glenn county is reported to be in fine shape and a good yield is expected. The crop for the county will, however, be less than usual, owing to the subdivision of several large ranches into small farms. Many small irrigation plants are being installed in the district around Orland.

An article in the Sydney, Australia, Herald describes a new seed drill, the invention of a Sydney man, the distinctive feature of which is that it sows fertilizer 3 or 4 inches below the grain. It is claimed that this makes possible an increased production of 1 to 4 bushels per acre, especially in dry seasons or dry regions by keeping the fertilizer away from the seed and by greatly strengthening the lower roots.

At Tampa, Florida, last week, the federal authorities seized 500 bags of wheat which had been shipped in. The sacks were labeled "100 pounds of wheat" but contained 48% of rye and over 3% of trash.

The first cutting of alfalfa is being harvested in the Hughson section. Farmers are selling the hay for \$10 per ton in the field.

Live Stock Notes.

Lower prices ruled in the Portland Union Stocks Yards Co. last week. Steers topped the market at \$8.30; cows brought

\$7.15 at the top; hogs were around \$9, with \$9.15 as the top; while sheep brought \$7.95 for lambs and down to \$6 for ewes.

The annual meeting of the San Mateo county Poultry Association will be held at San Mateo, on May 8, at 8 p.m.

At a meeting of the directors of the San Francisco Poultry Association held on the 17th inst. three judges for the next show were selected. They are: Henry Berrar, San Jose; R. J. Venn, Fresno; and C. G. Hinds of Oakland. The association decided to join the American Poultry Association and to be governed by its rules.

Kings county creameries paid about a cent per pound more for butter-fat in March than they did in February. The payroll for the month was \$155,000 by Hanford creameries.

Eleven hundred head of California cattle will be shipped to the fourth district in the Nevada and Idaho forest grazing ranges. Every effort is being made to help carry over California stock through the dry season.

The Hubbard-Carmichael company of Gustine, who own over 300 head of dairy cows, are operating a cheese factory and turning out about half a ton of cheese per day.

The Tulare creameries paid to dairymen for March butter-fat over \$100,000. Of the amount \$71,614 was paid for cream received at the creameries, and the balance was for cream taken in at their branch depots.

A report from Montague states that 800 choice steers shipped by J. C. Mitchell of Gazelle, sold on the Seattle market for \$99 per head.

Corning is becoming a great poultry center. Thousands of chickens are shipped out every month, and the local merchants are supplying the egg market of the valley.

A meeting was held at Tulare last Saturday to perfect a co-operative poultry marketing association. Nearly fifty poultrymen were signed up as members. The object is to eliminate the profits taken by the middlemen, and to that end an egg depot will be established at Tulare.

Fresno poultrymen are making an effort to secure the meeting of the California branch of the American Poultry Association at that place at the same time in December that the regular county poultry exhibit takes place.

Several horses have died near Delhi, Merced county, of a mysterious disease which was first thought to be due to congestion of the bowels. Upon examination by the county veterinarian the conclusion was reached that feeding hay from stack bottoms infected with what is termed "forage mold" caused the sudden deaths.

To help build up their flock for the Panama Exposition, Bishop Bros. will make a large importation of pure-bred Shropshires this spring. Their shepherd Mr. Ballard, started for England on April 18 and will return about June. This firm reports an excellent lambing season. They have a fine lot of yearling rams and ewes for this season's trade.

Land Development.

The Hogin ranch, consisting of over 3000 acres, was sold last week to J. M. O'Brien of San Francisco, who will subdivide the tract and sell it in small lots. This ranch is one of the best known in the central San Joaquin valley and is located on the northern border of Madera county adjoining the Chowchilla ranch. It has been used for grain raising for half a century.

Los Angeles parties last week purchased 2000 acres of the Gooch land three miles south of Red Bluff. The same company bought over 800 acres of alfalfa land from J. L. Casale; the total deal

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Newton's Gopher and Squirrel Killer No. 6

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amounting to \$150,000. A demonstration farm will be started on the property and various improvements made before being subdivided and put on the market.

The Todhunter ranch, adjoining Willows, was purchased last week by San Francisco parties. This ranch consists of 380 acres and is all sown to alfalfa and supplied with an underground irrigation system.

The fine stock ranch known as "Gualala," located in the northeastern part of Sonoma county was sold last week by James Otis to a San Francisco party. This ranch is considered one of the best stock ranges in the State and is to be improved by the new owner.

In the El Cajon valley, San Diego county, many ranchers are putting down wells and equipping them with electric pumping plants.

About 3000 acres of land sold last week to William H. Jones of Chicago for about \$150,000. The land lies in the Buena Vista Reclamation District near Tulare lake. The land is to be placed under intensive cultivation.

The 4-year-old peach orchard of 14 acres near Yuba City, owned by E. J. Henman, was sold last week to Clarence W. Rankin for \$11,000. As a 3-year-old this orchard produced last season \$2000 worth of fruit.

It is reported that the Jeff James ranch on the west side of Fresno county was sold last week by the Graham Farm Lands Co. to a combination of Los Angeles capitalists. This ranch is one of the best in that section and was sold a year ago for about \$2,500,000.

The Santa Paula ranch of about 4000 acres lying southwest of Hanford was sold last week to L. H. Durant and C. E. Rees. The new owners propose to convert the property into a big stock and alfalfa ranch.

The Chas. Zacharias Co. has recently been successful in securing a good flow of water in a well 350 feet deep on the

NEW TOWNSITE OF WALNUT CREEK.

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The NEW TOWNSITE OF WALNUT CREEK adjoins the thriving little town whose name it bears. The Oakland & Antioch Electric Railway passes through the tract. Six trains each way daily to San Francisco and Oakland put you in close touch with the bay cities. The running time to Oakland is about 40 minutes and to San Francisco a trifle over an hour.

The NEW TOWNSITE OF WALNUT CREEK is located on beautiful rolling land overlooking all the surrounding country. The view extends over the San Ramon, Ignacia, and Clayton Valleys. You can see from Danville on the south to Suisun Bay on the north. Majestic Mt. Diablo is in full view and can be seen from its foothills to the peak.

The NEW TOWNSITE OF WALNUT CREEK offers lots from \$500 up. All lots are large, being from four to five times the area of the ordinary city lot. The terms are exceptionally liberal. For instance, you can purchase a \$500 lot on payment of only \$7.07 cash and \$7.07 monthly thereafter. Immediate possession is given to purchaser.

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lands northwest of Patterson and will commence seeding the lands adjoining to alfalfa. This district heretofore has been considered dry land, and the bringing in of a good well will mean the gradual change of the district from grain to alfalfa and fruits.

Messrs. Frick and Hubbard have commenced the work of building irrigation canals to bring 5000 inches of water from Beegum creek to Happy valley, near Anderson, Shasta county.

The Solano Irrigated Farms Co. has got reservoirs and canals well enough along to begin irrigating land next month. There are 13 tractors busy which are said to be turning over 520 acres of land every 24 hours. The deepening of Montezuma slough to Denverton has also progressed rapidly. There have been two carloads of eucalyptus planted along roadways and 150,000 such trees will be planted this season.

One of the largest deals in the Santa Clara valley for months was the sale of the 185-acre prune orchard of the Tyrone P. Spiers property on the San Jose-Los Gatos road and National avenue to E. W. Crelling of San Francisco. The price, including equipment, amounted to \$100,000.

Other recent sales are of the B. A. Bell ranch of 2000 acres near Red Bank, Tehama county, to C. V. Posvar, for \$30,000; of 550 acres from the estate of A. L. Overton, north of Chico, to Chas. Fortier, for \$26,000; of 325 acres four miles east of Nicholas, Sutter county, from Los Plumas Land Co. to George H. Brand, \$40,000; of the 3179-acre Santa Paula rancho tract in Kings county to L. H. Durant.

Santa Barbara Progressive.

The monthly report of Horticultural Commissioner C. W. Beers, of Santa Barbara, shows the fruit men of that county to be making excellent progress. Dry weather has been favorable for the development of the red spider on citrus trees, and a number of power machines for dusting with the sulphur-lime mixture have been installed. The purple scale, occurring in a few spots, has been so well looked after that its spread has been checked. A fumigation outfit is advised for the use of dooryard trees and in places where the owners alone would not fumigate for scale insects. A large

amount of citrus planting is going on. A large amount of working over of walnut trees and planting of grafted stock is also occurring. In the Santa Inez and Santa Maria districts much deciduous planting is being done and crop conditions generally are excellent. The spraying experiments of the Agricultural Experiment Station for the walnut blight are being conducted with the utmost thoroughness and apparently will give quite definite results regarding the control of this disease.

Commissioner Beers also draws attention to two varieties of seedless oranges now growing in the county, neither a navel and each very sweet. There are good possibilities that these will prove of much economic value, and they are being budded for trials under varying conditions.

Grape and Fruit Selling.

The California Wine Association has contracted for about 6500 tons of grapes in Fresno county for \$10 per ton, which will about be the limit for the season for their business in the county.

The California Associated Raisin Co. is considering plans whereby the packing of the raisins will be done by the packers on contract. The acreage contracted for has increased to about 85,000 acres.

The Nevada County Fruit Growers' Association has chosen John B. Stennett, president; Dan F. Norton, vice-president; E. H. Armstrong, secretary; and E. C. Morgan, A. L. Wisker, W. H. Davy, B. G. Behrens, and J. S. Corey, trustees. The association has adopted a new label for fruit boxes.

The Chico Dried Fruit Association is contemplating the erection of a packing-house.

Fruit men of Porterville are getting plans for a cannery well under way. Work on a new cannery in Grass Valley has already been commenced. A. H. Mills will be superintendent.

Stanford Ranch May Be No More.

It is with regret that the announcement is received that the Stanford Ranch at Vina, Tehama county, may soon be sold out by the regents of Stanford University. This is one of the largest and finest ranches in California and contains 42,000 acres of land and over, having an excellent pure-bred dairy, fine beef stock, very large vineyard and winery, and well-paying orchard. It was described in detail not long ago in these columns. The regents are said to be intending to sell to a syndicate of Los Angeles and San Francisco capitalists and will invest the returns in bonds. The large ranch down at Nelson and Durham of 18,000 acres will also be up for sale. This contains excellent land, but has not been greatly improved.

Irrigation.

If 30,000 acres of land south and east of Oroville can be signed up, it is proposed to purchase the water rights and system of the Palermo Land & Water Co., form an irrigation district and bring a large amount of water from the south fork of the Feather river to irrigate the property.

Meetings are being held in Klamath Falls, Oregon, to have reclaimed the tule lands along the Klamath river and around Lower Klamath lake. There are about 75,000 acres involved, and the cost would be \$35 per acre.

A movement is on foot among some Willows men for the irrigation of several thousand acres along Elk creek.

Merkley, Chittenden & Keller have taken over from Richie Mull 1200 acres of land at Grays Bend, to be reclaimed and subdivided.

Drought Resisting Crops

Inasmuch as all kinds of feed are sure to be high all season, it behooves farmers to plant drought resisting crops, such as

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Prizes for Holstein Owners.

The Holstein-Friesian Association of America has published the list of prizes to be given at the various fairs throughout the country this year. At the State Fair in Sacramento 15% cash will be added to each cash prize in division B3, class 1, sections 1, 2, 3, 4, 5, 6, 7, 8, 9, 10, 11, 12, 13, 14, 15, 16, 20, 21, 22, 23 and 24. In division B, milking test, sections 1, 2 and 3, a silver cup will be given to each prize winner, if a registered Holstein-Friesian, but no contestant shall receive more than two cups. This offer is based on the classification as it appears in the premium list of last year.

AGRICULTURAL EXPERTS.

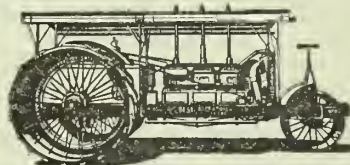
Thomas Berry, M. Am. S. C. E., and Wilhelm K. Winterhalter announce that they have become associated in the name of Berry & Winterhalter, of San Francisco as consulting civil engineers and agriculturists. They will specialize in irrigation development; the drainage and reclamation of lands; the investigation of sugar factory locations; and general agricultural improvements. At the same time advice will be given on general agricultural problems; the development of farm lands; soil improvement, etc.

Mr. Berry's engineering experience covers a period of 27 years, the greatest portion of which has been devoted to the investigation, development and operation of irrigation properties throughout the Western States. He has also had charge of reservoir construction for the Sao Paulo Tramway Light & Power Co. of Brazil, conducted investigations, and been consulted on extensive hydraulic developments for the Sao Paulo Electric Co. and the Rio De Janeiro Tramway Light & Power Co. of Brazil, S. A.

Mr. Winterhalter, since graduating from the Bavarian Agricultural Academy in 1888, and taking post-graduate work at the University of California under Professor E. W. Hilgard, has had a wide and varied experience in the practical application of scientific knowledge to agricultural problems, extending over a period of 22 years. His connection with the beet sugar industry of the United States and Europe as consulting agriculturist for the American Beet Sugar Co., has brought him in close contact with intensive farming methods, enabling him to pass judgment on the adaptability of specific localities to the extension of the industry, and the erection of sugar factories. He has maintained an office as consulting agriculturist in San Francisco for the past two years.



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The Home Circle.

Mother's New Game.

Mother tripped over Ted's tippet, picked up Maisie's thimble, put Nell's latest letter to Alice in the desk, and sat down with a sigh. A spool of thread, partially unwound, amused the kitten on the rug, a doll's hat hung on the back of father's rocker, and the table was a discouraging jumble of school books, drawing materials, a half-eaten apple, some sewing and Alice's music roll.

"Five o'clock in the afternoon and this room was as neat as a new pin after luncheon. Children!"

There was something so determined in mother's voice that Ted dropped his "Robinson Crusoe" with a bang and Maisie looked up with a wonder in her eyes.

"We are going to have a new—game."

"Goody!" cried the unsuspecting Ted. "What's its name?"

"The Pound," mother replied, solemnly. "Beginning at seven tomorrow morning all articles found out of place will be confiscated and put in the pound." The children looked around the library in dismay. "And," continued mother, "it will cost the owner a cent to redeem any article."

Alice began to count on her slim fingers how much her negligence would cost the present moment at that rate.

"Music roll, letter, gloves, two books—a nickel gone all at once."

Ted and Maisie scrambled together their various belongings in a desperate hurry, rather enjoying the novelty, and the next morning the three were very cautious.

But when Ted started for school in the afternoon the usual cry of "Where's my cap" was raised—for what boy ever knew where to find that troublesome article of headgear? "I am sure—nearly—that I left it on the bookcase—or else that I left it hanging on the knob of the dining-room door."

Willing little Maisie trotted from room to room, and Alice tossed the sofa cushions about in the search.

At his wail of "Oh, dear! there goes the last bell!" mother suggested, quietly, "Possibly your cap is in the pound, son."

Ted's mouth puckered into a rueful whistle, and he rushed off to ask Norah, the trim maid, who had "picked up" after the Carleton children till she greeted the pound as a welcome relief.

"Yes, sir, I found it on the library floor, and I put it in the pound—their's my orders," and Ted manfully produced a bright new penny as ransom.

It was on the same day that Maisie announced dolefully, "Mamma, I've lost Guenivere's very bestest jacket—must have dropped it coming home from Clara's."

"It seems to me I remember a little red jacket hanging on the easel in the sitting room. Do you suppose—"

"Oh, the pound!" exclaimed the little girl, clasping both fat hands. "I'll have to open my bank." But she stopped to replace some bright-colored tissue papers and the mucilage bottle before she ran off, hugging Guenivere tightly, as she whispered, "What would you do if you were—pounded, dolly, dear?"

There was a great laugh when papa had to pay for his overcoat left on the sofa, and one morning Alice leaned over the banisters and called in distressed tones, "Norah, have you seen my low shoes? I can't find them anywhere."

"Shure, Miss Alice, they're in the pound. They was under the bed 'stid of in your clothes press."

Alice paid her cent with a very pink face, to the accompaniment of Ted's derisive hoots, for Alice had been fortunate

in avoiding fines compared with the reckless lad.

And so it went, until Christmas time, with its fun and mystery, was drawing near, and mother said one evening, with a satisfied smile, glancing about the orderly room, "Well, children, we have tried our game for three months, and I am delighted with its success."

She emptied a little heap of copper and five-cent pieces upon the table.

"Buy candy," suggested Ted promptly.

"Books," corrected Alice, scornfully.

"I know, mother," whispered Maisie. "For the Mission Christmas tree."

The little girl's plan was voted best, while Alice counted and commented, "All those scores of pennies are the result of three little months."

"These are the results—a neat, pleasant room, and three children who have learned the beauty of order, and the selfishness of leaving things about in the way of other people."—Jacquett Hunter Eaton.

Traveling Rural Hospital.

A pressing need of our rural districts is for the same kind of hospital treatment which is open to even the poorest inhabitants of our city slums. In connection with his work in the hookworm commission, Dr. C. W. Stiles made some observation along this line. He found that the average mother he met in his field work is attended in her confinement, rarely by a physician or a trained nurse, but usually by some of the neighbors or a dirty ignorant mid-wife, with the result that injuries frequently occur which are never properly treated. Dr. Stiles also found large numbers of children who are handicapped in their physical development by large tonsils and adenoids, and by defective teeth and eyes.

The remedy which he proposes for these evils is a traveling hospital, equipped for minor surgical work on children and for the repair of obstetric injuries or gynecologic ailments. He believes it would be a comparatively simple matter to fit out a special hospital train of from three to six cars and take it to the districts without hospitals.

The difficulties to be overcome in establishing these trains are not insurmountable, and the expense need not be greater than that connected with any other hospital. It could be used to bring about such results as much needed post-graduate medical instruction to local physicians; ideas for mothers on house-keeping, caring for the sick, infant feeding, etc., and to fathers on farm and community sanitation.

Dr. Stiles believes that this work is more important than any other line of work which can be done by special school trains. The Journal of the American Medical Association, commenting on Dr. Stiles' experience says that the suggestion is more valuable coming from Dr. Stiles, as he has had practical experience on laboratory trains in the rural districts in which research and observations were conducted on school children. This has shown him the need, the practicability and the possibilities of such a hospital train as he suggests.—Western Fruit Grower.

Squared His Account.

Down in Kansas lives a simple-minded youth by the name of Bill Beasley, whose facility in contracting small debts at the local stores is only equaled by his success in evading their payment. One day, however, Bill made the mistake of showing some money before a creditor, and after the hard-fought argument which followed, the money was handed over to the storekeeper.

"Now," said Bill, sadly, "we're square

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TEA



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Save from 25 to
75c per pound

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60c per pound.

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is found wherever good chocolate is served. Its distinctive flavor and absolute purity account for its great popularity. It is one of the few beverages that can be given to young children without ill effects. Tell your grocer to send you a three pound can today. That's the cheapest way to buy it.

To prove that
Ghirardelli's
Ground Chocolate
is as good as we say
it is, send for a trial
can—free upon request.

D. Ghirardelli Co.
San Francisco

and I want a receipt; and make it legal so you won't be after me again." And here is the receipt which Bill proudly exhibited to his friends:

"To whom it may concern: Greeting—All men know by these presents, habeas corpus and nux vomica, that Bill Beasley don't owe this firm nothing, and ain't going to."

Moral: There are others.


A certain Chicago merchant died, leaving to his only son the conduct of an extensive business. "Well," said one friend, "for my part I think Henry is very bright and will succeed." "Perhaps you are right," said another, "Henry is undoubtedly clever, but take it from me, old man, he hasn't got the head to fill his fathers shoes."—Harper's Weekly.

Nothing enhances the face so much as nice, even white teeth, and everyone can have such in these days of wonderful dentistry. Every mother should look after her child in the first place to see that the teeth come in straight. This can be done by having each of the first teeth removed at just the right time when the one which is to replace it is coming, otherwise the permanent tooth will not have a place to grow into. If the teeth have come in crooked and overlapping, it is easy to have them straightened before one is too old. The earlier in life which it can be done the easier it will be. The teeth should be kept spotlessly clean and as white as possible. Brushing alone will not accomplish this. Once in two or three weeks take an orange wood stick, and with a little powdered pumice-stone go

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This is only a hint of its wonder-working possibilities. Send for the booklet and read it. You'll find it brimming with interest from cover to cover, and full of helpful illustrations and suggestions. No one intending to build or remodel any type of building can fail to be interested. Write to-day.

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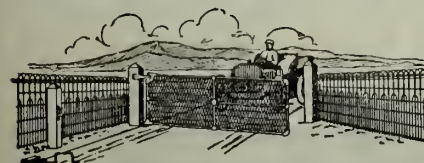
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over them, removing any spots. To have good teeth, to prevent them from decaying and incurring heavy dentist's bills, keep them clean.—"Health and Good Looks," in the Ladies' World.

Helping.

The basket of blocks was on the ground, and three rather cross little faces looked down on it.

"It's too heavy for me," said Jimmy.

"Well, you're as big as I am, 'cause we're twins," said Nellie.

"I won't carry it!" said the little cousin, with a pout.

Mamma looked from her open window, and saw the trouble. "One day I saw a picture of three little birds," she said. "They wanted a long stick carried somewhere, but it was too large for any one of them to carry. What do you think they did?"

"We don't know," said the twins.

"They all took hold of it together," said mamma, "and then they could fly with it."

The children laughed and looked at each other, then they all took hold of the basket together, and found it very easy to carry.

"The way to do all hard things in this world," said mamma, "is for every one to help a little. No one can do them all, but every one can help."—Exchange.

Smiles.

The teacher was hearing the youthful class in mathematics. "Now," she said, "in order to subtract, things have to be in the same denomination. For instance, we couldn't take three years from four peaches, nor eight horses from ten cats. Do you understand?" There was assent from the majority of the pupils. One little boy in the rear raised a timid hand. "Well, Bobby, what is it?" asked teacher. "Please, teacher," said Bobby, "couldn't you take three quarts of milk from two cows?"—Credit Lost.

In a big cotton manufacturing town of Lancashire a revival service was held. The minister called upon all those who wished to go to heaven to stand up. All rose to their feet with the exception of one young man. "Don't you want to go to heaven, my friend?" asked the preacher. "Oh, aye, I want to go right enough," the young fellow replied, "but not wi' t' trip."

The teacher was hearing her class of small boys in mathematics. "Edgar, she said, "if your father can do a piece of work in seven days, and your Uncle William can do it in nine days, how long would it take both of them to do it?" "They never would get it done," answered the boy, earnestly. "They would sit down and tell fish stories."—Credit Lost.

"I noticed, dear," said Mr. Markham to his wife, "you didn't say 'thank you' to the man who gave you his seat in the street car this evening." "No," replied Mrs. Markham; "you see, I once stopped to say thank you, and by the time I had done so I found that another woman had the seat."—Credit Lost.

A girl in a public school was asked by her teacher to illustrate the difference between the words "balance" and "remainder." Her answer was: "You can say 'A man lost his balance and fell'; but you cannot say, 'A man lost his remainder and fell.'"

"Bottles and rags! Bottles and rags!" called the ragman. "Why do you always put these words together?" asked a passer-by. "Because, madam," said the ragman, courteously touching his hat, "whenever you find bottles you find rags."—Woman's Journal.



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When Senator Taylor was Governor of Tennessee he issued a great many pardons to men and women confined in penitentiaries or gaols in that State. His reputation as a "pardoning governor" resulted in his being seiged by everybody who had a relative incarcerated. One day an old negro woman made her way into the executive offices and asked Taylor to pardon her husband, who was in gaol. "What's he in for?" asked the governor. "Fo' nothin' but stealin' a ham," explained his wife. "You don't want me to pardon him," argued the governor. "If he got out, he would only make trouble for you again." "Deed I does want him out ob dat place!" she objected. "I needs dat man." "Why do you need him?" inquired Taylor, patiently. "Me an' de chillun," she said, seriously, "needs another ham."

Two Minds With Two Thoughts.

Young Newed—A penny for your thoughts, darling.

Mrs. Newed—Oh, they will cost you more than that.

Newed—What were you thinking about?

Mrs. Newed—The dress I ordered yesterday.—London Opinion.

Solid Chocolate Cake.

Two eggs, 2 cups sugar, 2 cups flour and ½ cup butter. Beat butter and sugar to a cream. Mix ½ cup milk, 1 cup grated chocolate, 2 teaspoonfuls vanilla. Bake slowly. This cake takes longer to bake than ordinarily.

THE STEPHENSON PATENT COOLER.

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Perfect ventilation.
Absolutely sanitary.



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MARTINEZ, CAL.

"Stockings?" said the salesman. "Yes, ma'am. What number do you wear?" "What number?" snapped the stern-visaged lady. "Why, two, of course. Do you take me for a centipede?"

"What's your husband's business?"

"Contractor."

"What line?"

"Debt."—New Orleans Times-Democrat.

THE MARKETS.

San Francisco, April 23, 1913.

(Unless otherwise noted, quotations represent prices paid to the growers.)

Cereals.

WHEAT.

The local market is now governed almost entirely by conditions in the East and North, and a general advance has been made in sympathy with greater firmness in those markets. There is not much trading here, as practically all supplies are coming from the North.

California Club, cttl.....	\$1.60	@1.62½
Forty-fold	1.65	@1.67½
Northern Club	1.60	@1.62½
Northern Bluestem	1.70	@1.77½
Northern Red	1.62½	@1.80

BARLEY.

There is considerable speculative business, which has some effect on the spot market. Buyers are taking a little more interest, and choice feed has again been marked up.

Brewing and Shipping...	Nominal
Choice Feed, per cttl.....	\$1.40 @1.45
Common Feed	1.35 @1.40

OATS.

White oats are in rather light supply, and with a steady demand are held at a slight advance. Red oats are unchanged, with plenty of stock coming in from the North.

Red Feed	\$1.65 @1.85
Seed	2.00 @2.10
Gray	Nominal
White	1.62½ @1.65

CORN.

Local quotations on Eastern yellow have again been marked up, following the rising market in the East, but there is no great demand here. California yellow is moving in a limited way at higher prices. Other descriptions are unchanged.

Cal. Yellow	\$1.55 @1.60
Eastern Yellow	1.60 @1.65
Eastern White	1.60 @1.65
Kafir	1.50 @1.55
Egyptian	1.70

RYE.

Rye remains nominal at the old figures, with little offered and hardly any demand.

Rye, per cttl.....	\$1.40 @1.45
--------------------	--------------

BEANS.

The bean situation remains rather uninteresting, as for some time past. There is no large demand for anything, and most descriptions are almost entirely neglected, though there is still some inquiry for small whites, and of late there has been a little call for pinks. Limas are quiet here, though there is a fair movement from the South. Otherwise prices are inclined to weakness, but not quotably changed.

Bayos, per cttl.....	\$3.25 @3.45
Blackeyes	3.15 @3.25
Cranberry Beans	4.70 @5.00
Horse Beans	2.25 @2.35
Small Whites	4.75 @5.00
Large Whites	4.40 @4.50
Limas	5.35 @5.45
Pea	Nominal
Pink	3.70 @3.90
Red Kidneys	4.00 @4.25
Mexican Red	4.00 @4.20

SEEDS.

No change has been made in quotations, and there is not much business in any line at present.

Alfalfa	15 @17 c
Broomcorn seed, per ton...	\$27.00 @28.00
Brown Mustard, per lb.....	3¼c
Canary	6 @ 6½c
Hemp	3c
Millet	2¾ @ 3 c
Timothy	Nominal
Yellow Mustard	Nominal

FLOUR.

Flour is moving on about the usual scale for this time of year, prices being firmly held at the old level.

Cal. Family Extras.....	\$5.60 @6.00
Bakers' Extras	4.60 5.20
Superfine	3.90 @4.10
Oregon and Washington..	4.90

Hay and Feedstuffs.

HAY.

Arrivals of hay in San Francisco have been much larger this week than for some time previous, but all offerings have found a ready market at full prices. There is, in fact, some advance, especially on the lower grades of grain hay, which are in strong demand and are

becoming rather scarce. Country markets remain extremely firm, current prices in most districts being above parity with those in this market. Local dealers say there will be no serious shortage of hay before the new crop comes in, as considerable volunteer and alfalfa hay is now being cut, and will relieve the situation until the bulk of the new crop is ready. Alfalfa is still in strong demand, but lower prices are expected soon.

No. 1 Wheat, or Wheat and Oat	\$19.00 @22.00
do No. 2	16.50 @19.00
Lower grades	15.50 @16.00
Tame Oats	16.00 @21.00
Wild Oats	14.00 @18.50
Alfalfa	13.00 @16.00
Stock Hay	9.00 @11.00
Straw, per bale.....	35 @ 80c

FEEDSTUFFS.

No further advance in prices is noted this week, but the market is quite firm all around, with a strong demand and no excessive supplies in any line.

Alfalfa Meal, per ton.....	\$21.00 @22.00
Bran, per ton.....	25.00 @26.00
Oilcake Meal	34.00 @35.00
Cocoanut Cake or Meal.....	Nominal
Cracked Corn	33.00 @34.00
Middlings	32.00 @33.00
Rolled Barley	29.00 @30.00
Rolled Oats	34.00 @35.00
Shorts	27.00 @28.00

Garden Truck.

VEGETABLES.

Most of the old onions now offered have been picked over, and are held at considerably higher prices. Oregonians also being higher. Australian onions are still in the market, and a few Imperial Bermudas are coming in. Otherwise the vegetable market shows very little change in values. Asparagus is still the important feature as regards quantity, and prices are about as before, with the canners buying freely. Receipts of green peas have increased greatly, and prices are lower, a greater decline being prevented by a good shipping demand. A few string beans and other summer truck have arrived from the South, but are not much of a feature in the market. Imported tomatoes are still bringing high prices, though cucumbers are lower. Receipts of celery have dropped off a little, causing a slight advance. Rhubarb is plentiful, but prices are pretty steadily held.

Onions: River, Yellow, cttl...	85c @ \$1.00
Oregon, per cttl.....	\$1.00 @ 1.15
Australian	4.00 @ 4.50
Garlic, per lb.....	1¼ @ 2c
Tomatoes, per crate.....	4.00 @ 4.50
Cucumbers, per doz.....	65c @ 1.00
Cabbage, per cttl.....	30 @ 40c
Carrots, per sack.....	75c
Cauliflower, per doz.....	70 @ 80c
Celery, crate	1.50 @ 2.00
Rhubarb, box	50 @ 1.00
Artichokes, doz.....	10 @ 25c
Sprouts, lb.....	7 @ 8c
Green Peppers, lb.....	25 @ 30c
Lettuce, crate	50c @ 1.00
Green Peas, lb.....	3¼ @ 5c
Asparagus, box	60c @ 1.25

POTATOES.

New potatoes have taken another drop, with supplies rather excessive, though garrets are still held at 4c. Old river stock is doing a little better, though there is no very urgent demand. Old sweet potatoes are getting scarce, and have advanced sharply.

River Whites, cttl.....	50 @ 65c
Salinas, cttl.....	75c @ \$1.10
Oregon, cttl.....	50 @ 65c
Sweet Potatoes	3.00 @ 3.25
New Potatoes, lb.....	2¼ @ 4c

Dairy Produce.

POULTRY.

The poultry situation is getting a little easier, though prices so far have not declined much. Arrivals of young chickens from California points have been somewhat larger, but there is a good demand, and broilers occasionally sell as high as 32c. There has been a little surplus of Eastern stock, but this is now well cleaned up, the only effect being an easier feeling in regard to old hens. Squabs are lower.

Large Broilers, per lb.....	29 @ 32 c
Small Broilers, per lb.....	30 c
Fryers, per lb.....	25 @ 27 c
Hens, extra, per lb.....	19 @ 20 c
Hens, large, per lb.....	18 @ 19 c
Small Hens, per lb.....	17 @ 18 c
Old Roosters, per lb.....	10 @ 12 c
Young Roosters, per lb.....	22 @ 25 c
Squabs, per doz.....	\$ 2.25 @ 2.50

Geese, per pair.....	1.50 @ 2.00
Ducks, doz.....	4.00 @ 6.00
Turkeys, dressed	22 @ 24 c
do live	22 @ 23 c

BUTTER.

Butter opened the week a little lower, but now shows signs of recovery, the increasing receipts being balanced by a lively demand. Extras are now a little higher than a week ago.

Thurs. Fri. Sat. Mon. Tu. Wed.	
Extras	26 26 25 25 26 26½
Firsts	24 24 24 24 24½ 26

EGGS.

Eggs have ruled a little higher most of the week, owing partly to a demand for shipment, but with ample supplies extras are back to 19c.

Thurs. Fri. Sat. Mon. Tu. Wed.	
Extras	20 20 20 19½ 20 19
Firsts	18½ 18½ 18½ 18½ 18½ 18½
Selected	
Pullets.....	17 17 17 17 17 17

CHEESE.

The cheese market seems to have reached about its spring level, as fancy flats have gained ¼c, and Y. A.s are firm as last quoted. Monterey cheese, however, is coming in very freely and is 1c lower.

Fancy California Flats, per lb.....	13 c
New Young Americas, fancy.....	14 c
Monterey or Jack Cheese.....	14 @ 15 c

Deciduous Fruit.

Arrivals of strawberries are steadily increasing, and the market will soon be amply supplied. Prices are accordingly somewhat lower on berries from nearby points, and as the trade is not taking much interest, a further decline is expected. There has been quite a run on the apple market for the last few days, and the high price of citrus fruits is evidently having its effect on apples. There is a fair demand for shipment, as well as in the local trade, and it is expected that the Newtown Pippins remaining in storage will be well cleaned up. Prices locally are not quotably higher, but there is a much firmer feeling and an advance is expected. A few cherries have come in, the first lot bringing \$3 per drawer.

Strawberries, crate	\$ 2.25 @ 3.00
Longworth, drawer	60 @ 85c
Other varieties, drawer...	40 @ 90c
Apples: Fancy Red, box.....	65c @ \$1.00
Newtown Pippins, 4-tier...	75c @ 1.35
Northern Spitzenberg.....	1.25 @ 1.50

Dried Fruits.

The dried fruit market shows very little change as far as prices are concerned, the only change in country prices being a slight advance in raisins, on which 2¼c is the bottom price. Business, however, is picking up considerably, and packers have advanced their selling prices in several lines. The greater firmness of raisins is beginning to attract some attention in the East, and there is a little shipping demand for apricots, which in view of the scarcity, causes a very firm feeling. There has been a little foreign inquiry regarding apples, which have been very quiet through the early spring, and peaches also find some demand. There has been considerable business in future figs, but no prices have been made on the new crop in other lines. The New York Journal of Commerce says:

"A firm feeling prevails in spite of the lack of important demand for stock exchange in sympathy with advices received from California. The Coast market is decidedly firm on all dried fruit, and especially prunes and raisins, and while the reports from primary sources of supply have stiffened the views of holders of spot goods, no quotable advance in anything on the list is to be reported. Raisins are stronger than anything else at present. The indications now are that the packers who had not made early contracts with growers before the Associated Raisin Co. became such a big factor in the situation will have to go to that organization for such supplies as they will need and pay the prices which it is in the power of the growers' company to make on all but the small percentage of the 1912 and 1913 crops which it does not yet control.

"California prunes on the spot are going slowly into consumption on small orders for immediate delivery at the quoted prices. The Coast market is firm on the large sizes and steady on intermediate and small counts. There is little demand for forward shipment on any size above 60s, and even for the larger counts there is no very important call at pres-



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It has plenty of power, pulls up to 6 plow bottoms in stubble, will plow and disc 10 to 14 acres a day—builds roads, saws, bales, threshes, shreds—does the work of four men and a dozen horses.

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ent. For California peaches the demand from this market for spot stock or goods for prompt shipment from the Coast remains light, but there is no anxiety manifested by sellers, and f. o. b. prices are held steadily up to the previously quoted figures. On the spot peaches are still slow of sale and prices ex store are somewhat nominal. Apricots are quiet and unchanged, both for immediate delivery and shipment from the Coast."

Evap. Apples, per lb.....	3@ 4c
Apricots	Nominal
Figs: White	Nominal
Black	Nominal
Calimyrna	Nominal
Prunes: 4-size basis.....	2 1/4 @ 4 c
(Premium: 1c for 40s-50s; 2c for 30s-40s.)	
Peaches	3 1/2 @ 4 1/2 c
Pears	4 @ 7 c
Raisins—	
Loose Muscatels in sweatbox	2 1/2 @ 2 3/4 c
Thompson's Seedless.....	5 c
Seedless Sultanas	3 @ 3 1/2 c

Citrus Fruits.

The Eastern orange markets continue in good shape, and satisfactory prices are being received. Shipments from California are averaging about 60 cars daily. On the New York auction, Monday, April 21st, fruit averaged from \$2.30 up to \$4.35, which means that good sizes of sound oranges commanded \$4 and better per box. At Boston, the same day, oranges sold for a little higher prices than the above, while Pittsburgh and Philadelphia were a trifle lower. It is expected that oranges will continue in good demand until fresh fruits from other sections are available. Lemons continue to bring good prices, though shipments from this State are very light. The Eastern auctions paid from \$3.50 to \$4.75 for lemons on Monday, the 21st. Private sales, as a rule, are higher.

Reports from Tulare county and from southern California groves are to the effect that the frosted orchards, with the exception of part of San Diego county, are blooming and putting forth new growth very freely.

Shipments of oranges to April 20, for the season, were 8333 cars, as against 15,263 cars last year. Lemon shipments were 1069 cars, as against 2268 cars last season.

No further change has been made in San Francisco quotations in any line. Supplies are still sufficient for local needs, as the demand is only moderate.

Oranges, per box—

Navels, good to fancy....	\$ 2.50 @ 4.00
Grapefruit, seedless	2.50 @ 6.00
Lemons: Fancy	6.50
Choice	5.00 @ 6.00
Lemonettes	4.00 @ 4.50
Limes	5.00 @ 6.00

Nuts, Honey, Hops, Etc.

NUTS.

There is nothing new in the nut market, stocks of last year's crop being well cleaned up, while it is too early to get much definite information on new crop conditions.

Almonds—

Nonpareils	17 1/2 c
I X L	16 1/2 c
Ne Plus Ultra	15 1/2 c
Drakes	12 1/2 c
Languedoc	11 1/2 c
Hardshells	8 c
Walnuts, 1912 crop—	
Softshell No. 1.....	16 @ 16 1/2 c
Hardshell No. 1.....	15 @ 15 1/2 c
No. 2	10 1/2 c
Budded	17 c

HONEY.

Values stand as before, with the better grades of both comb and extracted firmly held, under a fair demand. There is very little coming in, but ordinary grades are quiet and in fair supply.

Comb, white	15 @ 16 c
Amber	11 @ 12 c
Dark	9 @ 10 c
Extracted, white	8 @ 10 c
Amber	6 1/2 @ 7 c
Off Grades	5 @ 6 c

BEESWAX.

While there is no very urgent demand

at present, all available supplies here are in strong hands and closely held, most of it being held by one house. The range of prices is narrower, the lower grades having been marked up a little.

Light	30 @ 31 c
Dark	29 @ 30 c

HOPS.

There is not much of the old crop left in the State, and as buyers are taking little interest at present, there is no movement of any consequence. It is too early for much activity in the coming crop.

1912 crop	12 1/2 @ 18 c
1913 contracts	13 @ 15 c

Live Stock.

The dressed meat market is keeping up in good shape, and the only changes in quotations are slight declines in light calves and both live and dressed suckling lambs, which are offered more freely than for some time past.

Steers: No. 1	7 1/2 @ 7 3/4 c
No. 2	7 @ 7 1/4 c
Cows and Heifers: No. 1....	6 1/2 @ 6 3/4 c
No. 2	5 3/4 @ 6 1/4 c
Bulls and Stags.....	2 1/2 @ 4 1/2 c
Calves: Light	7 1/2 @ 7 3/4 c
Medium	7 @ 7 1/2 c
Heavy	5 1/2 @ 6 c
Hogs: Grain-fed, heavy.....	8 1/4 @ 8 1/2 c
150 to 250 lbs.....	8 3/4 @ 9 c
100 to 150 lbs.....	8 1/2 @ 8 3/4 c
Prime Wethers	6 @ 6 1/4 c
Ewes	5 @ 5 1/4 c
Lambs: Suckling	6 3/4 @ 7 1/4 c

DRESSED MEATS.

Steers	11 1/2 @ 12 c
Heifers	11 @ 11 1/2 c
Veal, large	10 @ 11 c
Small	12 @ 13 c
Yearlings	12 @ 12 1/2 c
Mutton: Wethers	11 1/2 @ 12 c
Ewes	10 @ 10 1/2 c
Suckling Lambs	14 @ 15 c
Dressed Hogs	12 1/2 @ 13 c

WOOL.

Northern clips are quoted lower, but all quotations are largely nominal, as the Eastern market is very dull, and local buyers, though they are looking over the new clips, are not yet making many purchases.

Spring clip:

Southern mountain, free..	9 @ 12 c
Northern, year's staple...	14 @ 16 c

HIDES.

All values remain as for some time past, with a moderate but fairly steady demand.

Heavy Steers, over 56 lbs.	14 c
Medium	13 c
Light Steers, under 48 lbs.	12 @ 13 c
Heavy Cows, over 50 lbs..	12 @ 13 c
Light Cows, 30 to 50 lbs..	13 1/2 c
Kip	14 @ 15 1/2 c
Veal	17 @ 18 1/2 c
Calf	17 @ 18 1/2 c

Dry—

Dry Hides	24 @ 25 c
Dry Kip, 10 to 15.....	24 @ 25 c
Dry Veal, 5 to 10.....	29 c
Dry Calf, 7 down.....	29 c

HORSES.

Quite a lot of first-class draft stock is being offered in the local market at present, this week's arrivals including several large lots of Shire and Percheron stock from northern California. Prices realized, while fairly well up to the range quoted, have hardly been up to the expectations of shippers, and in view of the high class of the horses sold, the figures are not what they should be. In addition to the drafters, some stock is being offered from local stables, and some good all-purpose and orchard horses are coming in from various parts of the State.

Heavy drafters, 1700 lbs. and over	\$300 @ 350
Light Drafters, 1500 to 1650...	250 @ 285
Chunks, 1350 to 1500 lbs.....	200 @ 250
Wagon Horses, 1250 to 1350...	180 @ 225
Delivery Horses, 1050 to 1250..	125 @ 150
Desirable Farm Mares.....	100 @ 125

MULES.

1200 lbs.	\$200 @ 250
1100 lbs.	150 @ 200
1000 lbs.	125 @ 175
900 lbs.	75 @ 125

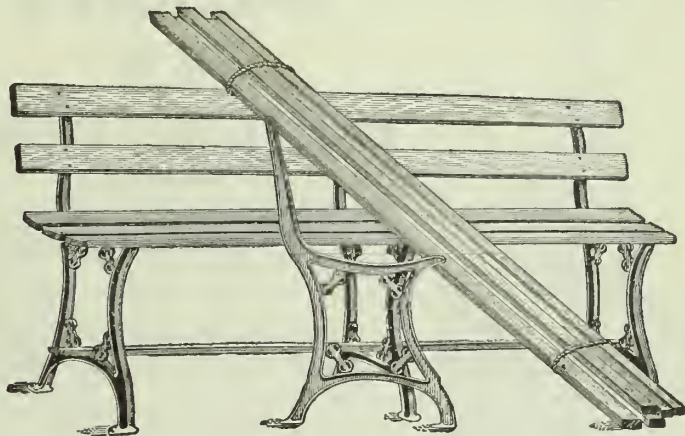
PUBLISHER'S DEPARTMENT.

We know that readers of the PACIFIC RURAL PRESS will wish the editor, Prof. Wickson, a pleasant trip to Europe, and we believe every one will look forward to his letter every week in this journal, in which he will give the benefit of his knowledge of California agriculture as contrasted with European ways and methods. Since the fall of 1875, Prof. Wickson has had editorial charge of the RURAL PRESS, and during all that time he has not missed a single week in furnishing part of the matter and in passing upon most of the articles it contained. It is with a sense of willingness that the publisher as well as the writers on this paper take up extra work in getting the journal out during Professor Wickson's absence, feeling that the readers of the paper will get real pleasure as well as profit in reading the broader articles which will appear from the editor's pen each week while on his trip. The work he goes to perform will be of incalculable

ble value to agriculturists and in 1913 to all people, if financial co-operation can be brought about and placed in operation. Certainly Governor Johnson could have selected no better man than the editor of the RURAL PRESS for the work. And in speaking only of Prof. Wickson, we cast no reflection upon his co-laborer from this State, Colonel Weinstock, whom we are told is well equipped by training and experience to represent California. We know Professor Wickson, having had five years of intimate association with him; we know of his ability, of his loyalty, and of his deep insight into California affairs. Old-time readers of this journal will agree with us that no better man could have been chosen, and they will look forward to reading his letters, which will appear each week while he is away.

At last we have the last of the copy for the new edition of "California Vegetables" in the hands of the printer, and we expect to get copies of the book soon. Those who have sent in orders will get the first that come from the bindery.

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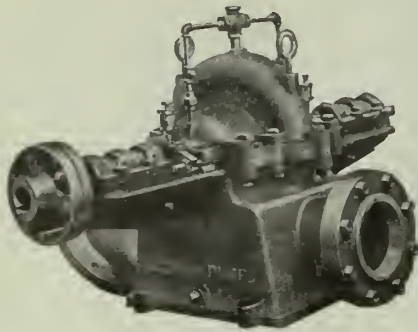
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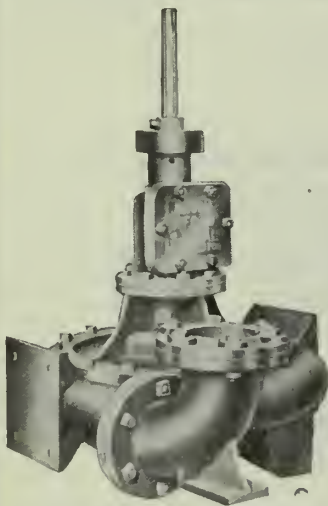
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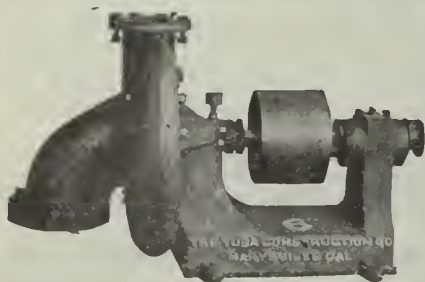
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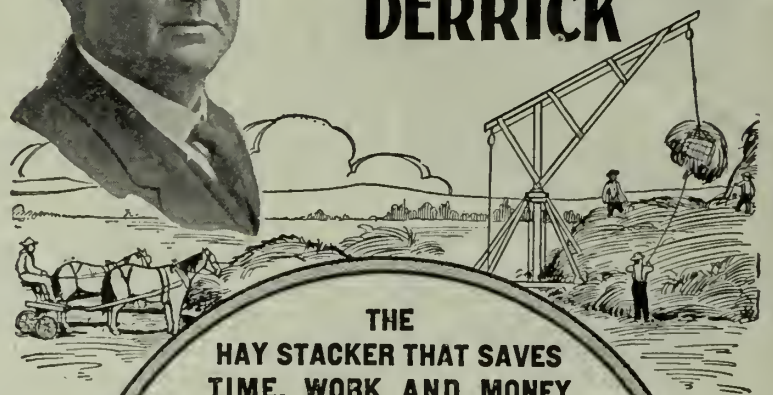
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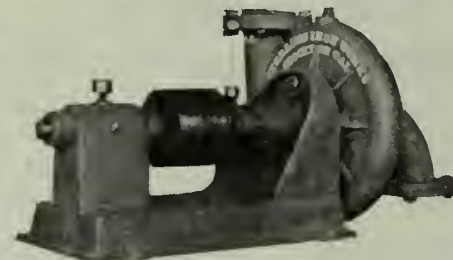
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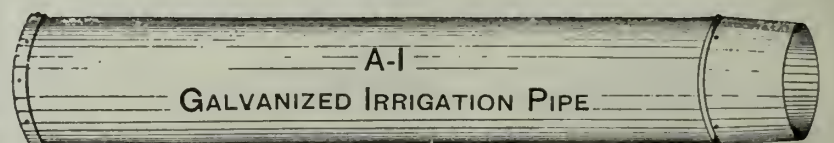
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THE PACIFIC RURAL PRESS

Vol. LXXXV. No. 18.

SAN FRANCISCO, SATURDAY, MAY 3, 1913.

Forty-Third Year.

Co-operation of Berry Growers.

[BY OUR ASSOCIATE EDITOR.]

This isn't any description of how townspeople co-operate; it is a story of the way fruit-growers co-operate, and Sebastopol is the town where two of the most interesting and successful co-operative organizations in California are located, the Sebastopol Berry Growers' Union and the Sebastopol Apple Growers' Union.

It is the thriving little town from which most of the Gravensteins of the Gold Ridge district of Sonoma county are shipped, also the famous blackberries and loganberries. These two products together are the main crops grown in the district by a big margin. They are

Berry-growing for long has been a leading feature of Gold Ridge farming, and there has always been a good market for the berries. These are the bush berries, not strawberries, and the canner has always been the main factor in the market. Shipping was a minor matter, though of importance.

The larger part of the berries for long have been sold to one of the leading cannery companies of the State for their local cannery. There also has always been a market for a good many, but in smaller lots by far, from the canneries around the bay, and in addition the shipping trade would take some.

Now, before there was any thought of co-operation, there was always a market for berries, but of course buyers never want to pay more than they have to for anything; of course not. And since the



A Fruit That Should be Grown on Every Farm.

produced in an abundance and are of a quality that is not equaled in any area of similar size in California, and as they go all over the country, it may well be believed not in the United States either. In the marketing of both of these products the growers' organizations are by far the greatest factors, and are of wide influence otherwise.

And just at the start it can be said that both organizations are merely stock companies—perhaps better leave out the word “merely”, for it may be misleading. Anyway, they are stock companies, with capital stock and the capital doing the work, and are run on a business basis with no apparent thought of dividing profits along the line that most growers' organizations do. Of course, this is not the right thing in theory, as all authorities will tell, and who knows but in the far-distant future some of the evils that pursue a growers' organization formed on a capital stock basis may develop? But they have done the business in this district with a maximum of success and a minimum of friction, and simply show that growers' co-operation, well managed, does great things, and that anybody who proclaims the success of only one form of co-operation is chasing a phantom.

Berry-men Start Things.—Now, Gravenstein apples are the one big thing of the district, but it was the berry-growers that started things, and it is the Berry Growers' Union that is the oldest and the biggest organization, not so much through the berries it handles as in other ways—but more of that later.

shipping and the bay demand was of less importance than the demand from the cannery in the town, there was not the competition there might be, and not the prices there might be, either. Wherever a fine co-operative organization is working, it is natural to ask, “How bad did things get before you started to co-operate?” That goes without saying.

Well, things did not get so awfully bad, like they did in the orange business, for instance, but the growers decided to get together and start something.

They Organize.—The very wise idea was followed that to get full value out of organization, markets should be developed. The cannery market did not look as if a lever could immediately be inserted under it, and the shipping business seemed the most natural and best thing to go into.

Previous to this the shipping business had been done by private parties who had bought berries outright. The union was organized and bought this out, and the manager of the union, from that time to this, has been Mr. I. N. Cable, whose business was taken over. What berries could not be shipped to advantage were sold to the cannery, and have been since. This saves the cannery a lot of trouble in going around and dickering with a lot of growers, and the mutual convenience of selling like this has been an excellent thing for the cannery,

(Continued on Page 520.)

Pacific Rural Press

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CALIFORNIA WEATHER RECORD.

The following rainfall and temperature record is furnished the PACIFIC RURAL PRESS by the United States Department of Agriculture Weather Bureau, at San Francisco, for the week ending at 5 p.m., Apr. 29, 1913.

Stations.	Rainfall Data.			Temperature Data.	
	Past Week.	Seasonal to Date.	Normal to Date.	Maximum.	Minimum.
Eureka .....	.42	33.75	42.34	68	38
Red Bluff .....	.00	17.40	23.20	86	44
Sacramento .....	.00	7.38	18.92	86	42
San Francisco ..	.01	11.32	21.26	85	46
San Jose .....	.01	5.57	16.01	88	34
Fresno .....	.00	5.88	8.91	94	44
Independence ..	.00	4.10	8.73	84	44
San Luis Obispo ..	.00	7.66	19.46	84	40
Los Angeles .....	.00	12.79	15.06	86	48
San Diego .....	.00	5.80	9.54	70	50

The Week.

Our fight against the inclusion of farmers in the Proposed Industrial Compensation Law has been won in part, to the extent at least of the exemption of agricultural operations from the scope of the law as an administration policy. Only the fight made against the bill in its former shape by the San Joaquin Grape Growers' Protective League and other farmers' organizations permitted the exemption to be made, and more fighting may be necessary in later years. In this fight the farmer has been the man between the two combatants. The labor unions and the others in the crowd that were insisting upon the passage of some such bill cared little for farm labor, but would not let the farmer be exempted as long as they could help it, in case this would make the law unconstitutional. Then after the farmer was exempted the opponents of the bill insisted that the farmer be included again, or that the law be not passed, because in such shape it was unconstitutional. Neither cared a rap about the farmers business, yet one crowd insisted that the farmer be included to keep the proposed law constitutional, and the other crowd insisted that the law be not passed because with the farmer exempted the law would be unconstitutional. The farmer was in the middle and was belabored by both sides more than they belabored each other. No one who has followed the discussion in these columns could doubt the unwisdom and injustice of applying the farmers in the measure, yet as trouble arises in the application of the law, if it becomes a law, the measure will be taken up in the next legislature and the farmer put in again.

General State Insurance.

As a matter of justice, there is but one thing to do: to have State-wide insurance with employer, employee and State sharing the load. It is a form of pauperism to give something for nothing, a proper development of responsibility and self respect calls for the person to be benefited to pay for the benefit. Justice and pros-

perity call for the man who is to receive most to give the most in return. It is only by assessing the employee a small part of his income that it can be determined what recompense he should be made in case of injury, or what his heirs should receive in case of death. That will give to each in proportion to his earnings, it will be fair to the employer, it will not, as the present measure will, if passed, make it possible for the small employer to be ruined through an accident due to the carelessness of the employee. This is the ultimate stage of such a law. The sooner it comes, the better for all concerned and the less probability of injustice to the farmer. Whether such State regulation is advisable as compared with present conditions is another thing, but apparently the State is getting ready to regulate everything in detail, and since it is bound to do so, we had better have sensible than foolish regulation.

Too Much Bureaucracy.

Farmers' legislation has a rough row to hoe, probably all kinds of legislation also has, for that matter. Everybody who has read the account of the Fruit Growers' Convention at Fresno knows that it was decided that a better relation should be established between nurseryman and fruit planter as regards the movement of nursery stock between counties. It was decided that county quarantines and county ordinances should not be passed without due deliberation regarding the rights of all parties concerned. When some bills got through the committee it was found that they would make ineffective any future county ordinances without the signed approval of the State Commissioner of Horticulture and would limit inter-county quarantines in somewhat the same way. The bill was caught before it got any further, but such a bill would surprise the fruit growers that were supposed to sponsor it. It is, however, hard to think it possible that such a bill could get very far even if overlooked by fruit men that were onto the job. As will be seen in another column, the State Commissioner would have been the practical source of appointment of county bee inspectors if the bee-men had let an amendment to their bill go through. There are some funny things for farmers all the way along, but the outcome thus far has been favorable.

World's Dairy Record Gone.

Leaving the legislature, even without talking of the one bit of legislation especially relating to farm lands, which is setting more than one government by the ears, it is good to find the progress that is being made in the dairy world, that another world's record has gone. The news has just come by cable that a Holstein cow of Stevens Bros., Rutherford, N. J., has broken the world's seven-day butter record, with between 44 and 45 pounds of butter, equal to between 35 and 36 pounds of fat. No name is mentioned, but the cow is a daughter of the King of the Pontiacs, and at least three of her half-brothers are owned in California, by the Stanford University ranch at Vina, the Millbrae Dairy, and H. F. Harrold. Neither will be any better bulls than before the record was made, all will be worth more now, and it is good to know that all kinds of good live stock blood gets out here.

Who Falls Heir?

The proposition of who is the son or daughter, of these great records being made, is pretty well decided in favor of the son. If we figure it out right, this is just the way it ought to be. When a cow makes a great big record, she can transmit the capacity to very few grand-daughters, provided the inheritance runs from daugh-

ter to daughter, but she can transmit it to grand-daughters galore if it runs from dam to son and from sire to daughter. Sons of Riverside Sadie, of Dolly Dimple, Jacoba Irene, and so on, can give those milking qualities, or we might say fat-producing qualities, to lots of future dairy cows. The rank and file of the pure-bred cows can give form, capacity, vitality, and breed excellence. The plan of inheritance thus gives an easy method of improving the dairy breeds. It's a wise old custom that gives the father the right to name his daughters, the mothers the sons.

Out in the World.

[BY THE EDITOR.]

[In our last issue Professor Wickson discussed personalities of the California delegation of the Co-operation and Rural Finance Inquiry and indulged in reflections hardly worth mentioning.—ASSOCIATE.]

Having plenty of available time on the train flying eastward across the plains, it occurred to us that we might to advantage do a little rehearsing of the part in the great rural co-operation and finance play which the Governor of California has assigned to us and perhaps satisfy ourselves somewhat that he was justified in such assignment. It seemed wise to try our art on an ordinary American citizen before tackling a European potentate. For this purpose we sought the popular fumigator ear, and, having identified the type, chose an individual and pressing upon him a pipeful and a match, by way of laying a foundation of communicability, we went to it.

"Have you given any attention, my friend," we said, "to the question of rural co-operation and finance, which is being so freely discussed in the papers?"

"Pears to me I hev read about it," he replied. "It sounds rolling-like. I take it be a new kind of tire fer artimobills, ain't it?"

"Well, not exactly," we said. "It is, however, a part of a great national movement. It strikes us that it belongs to the steering gear, not to the wheels. We are trying to run public affairs in this country so that every man will get just exactly what belongs to him, because all men are free and equal under the Declaration of Independence, and therefore all are equally entitled to the fruits of their labors without being imposed upon and robbed by others, no matter if they do form great trusts and corporations, to get more than belongs to them."

Our victim was visibly affected by this doctrine. After a few vigorous pulls and spits, he gave a start, and exclaimed: "I get yer; I have heered that there was a crank down in this section holding forth on the railroad platforms on some country where all such things was going to come to pass. A man told me that the feller called this new country 'Youtopey'; and he 'lowed it was a new colony in Californy, 'cause the crank seemed to come from that way." Then he seemed to get a second thought, for he turned on us quickly and said in a hoarse whisper under his fist: "Say, be you that chap—how did they let you get on the cars?"

Taken for a Utopian.

He evidently thought he had us all right, and so we had to declare vehemently that we were no walking apostle of Utopia, but a duly accredited delegate from California on a world inquiry of much moment. That we had to find out how farmers could sell their produce to the better advantage of the whole people, and how they could borrow money at lower rates to develop more land and improve the old land so that it

would bring more food for the people and more prosperity for the farmer.

The Farmer a Good Lender.

This proposition seemed to hold him for a moment, but he soon exclaimed: "I'm mighty glad you ain't going away to find out some new wrinkle about farmers lending money. You may help them to borrow, for no farmer can hold a candle to a village bum when it comes to borrowing, but helping a farmer to lend money or teach him new tricks about that, no man on 'arth kin do it. Don't I remember old Deacon Smith in my home town back East? He was a farmer who could give points to any loan shark. He didn't need no modern safety razor in his business; in shaving nodes he could get off more skin 'thout drawin' blood than any banker in the hull country. He was the feller what started using flattened bullets instead of copper pennies on the eyes of his dead debtors. Don't yer fergit it: when it comes to lending, the farmer is the most scientific financier in the world! More 'an that, who was it lent the money to develop the prairie States after the war? Wasn't it the farmers of New England and New York who wuz growing two-dollar wheat and couldn't pay their country preachers more 'an \$400 a year to save their souls because they was scraping up every cent to send to Iowa to git ten per cent? Don't talk to me about farmers needing to know more about lending money; they have had the hull country skum for more than fifty years, that I know of."

Why Are Not Farmers Millionaires?

"Well, friend," said we, somewhat cowed by his vehemence, "if the farmers are such great financiers, why is it that we have no farming millionaires—that is made millionaires by farming? Why is it that most of the millionaires have become so by moving farmers' crops or by gambling in them or by making things which farmers have to buy? Why is it that farmers make millionaires out of other people and not out of themselves? Why is it that millions are lost between the farmers and the consumers and that neither farmers nor consumers ever pick them up."

"Shucks," he said, "that's easy; it's because they ain't smart enough to catch onto new ways of doing things. They are still trying to fill a bar' by squirting into the spigot instead of turning a stream into the bung-hole as the millionaires do. That old saw about the bung-hole and spigot ought to be re-set. The farmer don't waste at the bung-hole, but he keeps on filling at the spigot and he never will get full. 'Pears to me that there is nothing the matter with the farming business, but with the farmer, and if borrowing will help him, go to it and teach him how."

Millionaires to Be Farmers.

"You do not seem to be afraid of millionaires," was all that we could say, for he was evidently anxious to be off again on his discourse.

"I been a thinkin' lately," he replied, "that if the farmers don't get to be millionaires, the millionaires will surely get to be farmers. I hear it is going that way pretty fast in Californy right now, that the hull State is being run over by promoters who are fixing up fancy investments for millionaires in thousands and thousands of acres which they are goin' to farm by steam and gasoline, and they are jist going to manufacture products of the earth as they do in factories. 'Pears to me we ain't going to live on what the farmer can spare, but we're going to have things made for us bran' new. We shan't need so darn many farmers to do that, but we need a few farmers who won't monkey around with a lame mule and a broken plow. Sich as that can live

just as they always have, but the world needs farmin' done like any other big business, and it takes millionaires to do that."

"But don't you think," we ventured, "that farming can be built up in that way if we can find out how to induce formers to work together to do it, and don't you think also that if money is secured at low rates for improvements which are necessary to increased production, that it will be a great deal safer and surer to do it that way than to risk the world's food on large schemes which are new to the experience of mankind?"

A Lay-Out for Better Farmers.

"Well," he replied, "I'll admit if you can make over the farmers into a broad-gauge consarn and have them run for a big thing and not be everlastin' pinching themselves and killing their wives with hard work and driving their children off the ranch by never giving them a show at anything that young folks like—if you can do some o' them things, I believe you may get the farmer into whack with the way the world is going. But he has got to learn to get more out of the land by growing bigger crops and using more machinery and keeping live stock that'll pay, and all that. I tell you, sir, this country won't stand for any more of the old style pinching farming. It is willing to pay the farmer more, but he has got to do more fer it."

"All right," we broke in, "you are getting around to our way of thinking. But how is the farmer going to do all this without having more capital to put into his business?"

A Vengeful Critic.

Then he jumped on us in good style: "Great Scott," he cried, "who's got more money than the farmers right now? Ain't they the real capitalists? Ain't they still skinning money off the farms to blow it into all the fancy securities the promoters can fix up? Ain't they wasting more capital every year on 'good things' than would fix up the farms to double the crops? What we need now is a full set of blue sky laws to keep farmers from fooling away what they make on farms. The whole lot of smart Aleeks which is putting up jobs to catch farmers' money would have to go to work at something useful if the farmers didn't keep 'em alive by swallowing the bait they put out. I'm sick of this talk about poor, down-trodden farmers. Someone ought to step on 'em hard enough to kill 'em and then the rest of the world would get a rest."

By this time he was shouting loud enough to be heard all over the ear, so we got him to take a fresh fill for his pipe and a new match while we kept busy thinking how we could turn all his surplus force to the purposes of our mission. At last we sidled up in this way: "Supposing, friend, that all that you say is true, don't you think that we might let the farmers live if we could show them things in such a way that they would become more progressive; if they would fit up their homes better and give the women happier lives; if they would give the kids a chance to see that the farm is the place to live well and make money, and that the farm itself can pay a higher interest on improvements than any outside investment they can make and at the same time be the safest thing on earth?"

This soothed him considerably. An expression almost angelic was spreading over his features as the smoke curled gracefully from his pipe-bowl, and we were thinking that our chance to preach our melting sermon on co-operation and rural finance had surely come. But a devilish smirk caught the corner of his mouth and shot to his eyes as he turned on us in almost Satanic glee—"How in 'ell can you make angels out of the

most obstinate, cantankerous, pig-headed lot of men in the world 'though killin' 'em?"

That shot put us to sleep. All we could do was to faintly whisper that we were going to Europe chiefly to get the answer to just that question.

We will talk some more tomorrow!

Queries and Replies.

Querists must submit full names and addresses.

The Time to Cut Alfalfa

To the Editor: Kindly advise me as to the best period to cut alfalfa hay for cow feed and the best method for curing same. There is a small amount of needle grass mixed with the alfalfa. Would also like to know what food can be profitably fed in conjunction with alfalfa.—R. F. M., Los Molinos.

The best time to cut alfalfa is just when new shoots are starting out at the crown. This will give the greatest yield of hay during a season, and the hay will be much more palatable than if the alfalfa is permitted to get well into the blossoming period. The leaves, which are the best part of the hay, also remain on better than if the stems are older. If a person does not care to take the trouble to find out whether the new shoots are coming out or not, he can approximate the time to cut fairly well by waiting until a blossom here and there appears, cutting immediately. It would be difficult to tell on paper exactly when alfalfa was properly cured, as that is a matter of individual judgment. It is usual to cut in the morning and rake into windrows in the afternoon. With the usual weather in interior California that stage of the curing is completed by that time. The next day it can be gathered into cocks and gotten ready to move. That is about all the curing that is done. The size of the windrows depends upon the amount of hay, as thick hay should be put up in small windrows to give plenty of circulation of air. It is considered better also to build the cocks on raked land, otherwise the hay lying flat at the bottom will not cure properly and cannot be gathered up clean.

Blight on Apple Tree.

To the Editor: I am sending you some apple blossoms. All on one tree are same as sample, and bark of limbs is beginning to peel off. Would like to know what is the cause, and if anything can be done for it. Also, am sending a sprig of rose bush. Is it mildew on the leaves? If so, will it disappear when warm dry weather sets in?—C. A. T., Orland.

The samples of apple blossoms arrived so thoroughly dry that not a great deal could be made of them. However, it seems clear that this is an attack of pear blight, which attacks apples as well as pears, and when on apples acts just the way you describe. The only cure for blight is to cut out affected parts, disinfecting the cuts with a 1 to 1000 solution of corrosive sublimate. With an apple tree so badly affected as yours, the only cure would probably be to cut it down entirely, or lose it and all the apple and pear trees around. The only way to overcome blight is to cut out every bit everywhere. If you don't want to risk cutting down the tree unnecessarily, have your county horticultural commissioner, Carl Ley, Willows, come and determine whether it is blight or not. The blight has been pretty bad in the upper Sacramento valley the last year. Your rose leaves seem to be mildewed, without doubt. The mildew should disappear with the warm, dry weather. Dusting with flowers of sulphur when the leaves are wet with the dew is also an excellent remedy if you don't want to wait until warm weather.

Do We Need a Hardier Orange?

[Because of frost injuries to citrus fruits in California, many of our friends are suggesting that perhaps we ought to go away and sit down until some one makes a frost-enduring orange. We are not inclined to admit the point. How long will it take to secure such a hardy fruit which will have the commercial acceptability of the sweet orange as now known? Manifestly an indefinite period of time—say a generation or two. Besides, California orange trees were so little hurt that next year's will probably be a full crop. Still, the way in which hardiness can be had in a citrus fruit is very interesting, and we take a reference to the subject from W. T. Swingle's last publication (in Circular 116 of the Bureau of Plant Industry) which will interest our experimenters.—EDITOR.]

A New Branch of Economic Botany.—This brings us to the point where we can appreciate the need of developing a new branch of botanical study of the morphological and physiological characters of the wild plants related to our cultivated crops with a view to determining their relationships and their availability for use in the improvement of our crop plants. Many of our agricultural investigators think of botany as a science of plant names or laboratory experiments with little or nothing in the way of practical relations to agricultural problems, but for the most efficient improvement in crop plants we must look to this new branch of botany for a thorough survey of the wild relatives of our cultivated plants. The crop physiologist must investigate the life history not only of the crop plant itself, but of its wild relatives, before he can begin to understand the possibilities of applying botanical science to agricultural problems.

The necessity of a knowledge of this new economic botany and crop physiology for the proper improvement of crop plants is strikingly shown in the work of breeding hardy citrus fruits. The first attempt along this line was the crossing of our common orange with the hardy deciduous *Citrus trifoliata* of Japan and China. When in a dormant condition *Citrus trifoliata* can withstand intense cold—temperatures of 10° or even 20°F. below zero do not affect it—but the fruit is small, very seedy, contains scarcely any juice, and the skin is full of intensely acrid oil. In spite of these drawbacks, the first-generation hybrids with the orange have turned out to be of considerable value and constitute a new race of hardy citrus fruits, which we have called citranges, and which are adapted to culture throughout most of the cotton belt. They will provide a home-grown substitute for lemons for 10,000,000 people of the South.

The Citrange.—Life-history study has brought out the fact that the hardiness of the hybrids (citranges) of *Citrus trifoliata*, like that of most other plants, is dependent on their condition when exposed to cold. An interval of hot weather in early spring forces these hybrids into a tender growth, and they are then liable to frost injury. In the meantime, investigations have shown that the kumquat possesses to a high degree another kind of hardiness due to extreme dormancy in winter; in other words, the kumquat can support weeks of hot weather without starting into new growth. Here, then, we have two kinds of hardiness existing in separate plants—the ability to resist extreme cold in *C. trifoliata* and the ability to withstand untimely spells of hot weather in the kumquat. When these facts were brought out, the breeding problem was greatly simplified. It became obvious at once that the use of the kumquat in hybrids would give us plants able to resist injury from hot weather followed by frosts. The latest creation in the way of hardy citrus fruits made by following up this lead is the limequat, obtained by crossing the common West Indian lime with the kumquat.

The lime is known to all growers as the tenderest of all the citrus fruits. Lime trees are frequently frozen to the ground when oranges and even lemons escape with little injury. This is due to extremely slight dormancy, even a few days of warm weather in winter being sufficient to start a new growth, which is then nipped by the first succeeding frost. The kumquat is admirably

adapted by its physiological constitution to remedy this defect, and fortunately its fruit, like the lime, contains an agreeable acid juice, and instead of having a disagreeable oil in the peeling, like *Citrus trifoliata*, the oil of the kumquat is so mildly flavored that the peeling is edible, having a pleasant aromatic flavor.

The Limequat.—Thus plant life history investigations pointed the way to a breeding experiment which was carried out in the spring of 1909. Already the hybrids made at that time have fruited abundantly and have fully met our expectations. The limequat proves to be a new race of limes able to grow without protection in the extreme northern Florida and probably suitable for culture throughout the warmer parts of the Gulf coast.

The fruits vary in size from that of a large kumquat to that of a small lime, and their flavor varies from mildly acid to as acid as the sourest lime. Here we have a new race of hardy fruits admirably adapted to our own conditions, obtained by combining two fruits having very unlike life-history requirements; one of them but poorly adapted to our climate, the other producing a fruit of little commercial value.

The great value of the kumquat for breeding purposes having been brought out by these experiments, a thorough botanical survey of all the wild relatives of our citrus fruits was undertaken, in the hope of finding other plants which, like the kumquat, would be of importance to the breeder. The result of this botanical survey was most surprising. It has brought to light a large number of wild relatives of our common citrus fruits which have been completely ignored by horticulturists and but little understood by botanists.

A Desert Kumquat.—Recently attention has been directed to a desert kumquat growing in the interior of Australia. This is the hardiest of all the evergreen citrus fruits and yields in the wild state an edible fruit something like a kumquat. This desert kumquat, in addition to the extreme dormancy possessed by the ordinary kumquat, has something of the direct cold resistance of the trifoliolate orange. Here, then, is material of the very highest value for the plant breeder. Yet this desert kumquat is a plant so insignificant in its wild state as to have been completely ignored by the enterprising and progressive Australian horticulturists and of so little interest to botanists that it has never been correctly classified, has never been figured, and has been only imperfectly described. Numerous other types of citrus fruit equally striking as examples of breeding possibilities and botanical neglect have come to light, but it would take too much space to enumerate them here.

PROBABLY CURL-LEAF.

To the Editor: I have set out some peach and apricot trees this year. They are all young trees and I have noticed the leaves are badly blistered. What is the cause and how can I remedy it?—Subscriber, Arboga.

The nearest approach to a blister on the peach leaves that we know of is the curl leaf, which, by the way, does not attack the apricot, and it would seem queer if you could mistake the curl leaf for something else. Still, this is just the time when it is most prominent. In this disease the tender leaves and soft twigs swell all up in fleshy, disgusting forms. Frequently these swellings have a reddish color. They take lots of nourishment from the tree, destroy the function of the leaves, and the leaves that are attacked soon or later fall, leaving the tree partly denuded and weakened. There is no cure after the disease has appeared, but in one year it will do no great damage. The time to begin is when the tree is dormant, when it can be entirely controlled by spraying, just before the buds open, with lime-sulphur solution or with Bordeaux mixture. Spraying is so universally done that the disease does little damage, but it is everywhere and can easily be serious if not sprayed for. If there are blisters on apricot leaves, send samples to the College of Agriculture, University of California, Berkeley, or to the RURAL PRESS.

FIG WASP AND CAPRI FIGS.

To the Editor: I am writing you for information regarding capri fig trees. Last winter all of the capri figs were frozen, and I am wondering whether I should re-caprify them the same as I do the Smyrna fig in order to get the wasp started again. As the Smyrna fig is new to me, I would be pleased to have your advice on the subject.—Pleased Subscriber, Turlock.

If your capri figs were all killed by the frosts, you certainly will need to get a new lot of figs and wasps in order to get any Smyrna figs this fall. Your capri trees may bear a fine lot of figs, those that are on the trees now, which figs would ordinarily be distributed in the Smyrna orchard this June, but unless the blastophaga, the fig wasp, has laid eggs and made preparations for a new generation of wasps, the figs will be of no benefit to the Smyrna trees. The distribution of capri figs should have been made before this, very probably, though it may not be too late yet. The way the system works is this: There are three generations of capri figs per year, overlapping one another. The female wasps come out of the old figs and lay their eggs in the new generation of figs. One of the main troubles with Smyrna growing, as practiced, is that frosts often cut off nearly all the capri figs in the winter and there are few wasps left to lay eggs in the figs in April, which figs are to be taken into the Smyrna orchard in June, at which time the new generation of wasps should come out and go into the young Smyrna figs, causing them to mature properly. You will only need now a few figs with insects emerging to lay lots of eggs in your new crop of capri figs. Possibly there may be some wasps around, and if so, you will be all right. If there are, you will see them around the openings to the figs. They are small, white insects. To be sure that you will have these wasps by spring, it is well to cover a tree or part of a tree to protect against heavy winter frosts, or to use orchard heaters. Likewise, it has been found that the capri figs can be picked in the early winter and kept in slightly dampened sand in the basement and that the wasps will develop and be strong by spring. This method has been successful, but is still on trial. In your case, see whether you have any wasps around, and if not, try to get a few, about four or five per capri tree, and more if possible, from a neighbor, at once. If you cannot find anyone who has them, write immediately to G. P. Rixford, Special Agent, U. S. Department of Agriculture, 1813 Pierce St., San Francisco, for information as to where some can be obtained. Once you know how to save your winter capri figs, the greatest problem in Smyrna fig production has been solved. If you are unable to get the wasp established in your new growth of capri figs, you still may be able to secure capri figs in June and save your Smyrna crop. The expense will not be great, though it is very much better to have your own capri figs.

LITTLE LEAF.

To the Editor: I am sending you under separate cover two twigs taken from plum trees in my orchard. Can you tell me what is wrong with the diseased twig? Some trees are loaded with fruit, while others seem diseased and have nothing on.—Subscriber, Ceres.

There is no evidence of disease on the affected twig. The fact that the leaves are very small and thin is evidently due to lack of moisture, as this effect frequently comes after dry winters when the trees suffer from lack of moisture. It is more frequently found on peaches than other fruits, but occurs on nearly all fruits. That it is due to lack of moisture also appears likely from the looks of the fruit on the sound twig, for when there is a lack of moisture the small prunes or plums frequently burn on the exposed side, as these have done.

CUTWORMS IN THE VINEYARD

Climbing cutworms often do serious damage to the expanding vine buds in many districts, and from reports that have reached the Experiment Station they are numerous in many vineyards throughout the State this season. Most of the injury to buds has already been accom-

plished and the worms are turning their attention to the new shoots and leaves. The first injury is often serious, but not always very noticeable. All vineyardists, and especially those having light sandy soils in which clean cultivation has been kept up throughout the winter, should examine their vines for the work of cutworms. This is easily recognized by the hollowed and shriveled buds, the destruction of portions of the already opened buds, and the partially consumed leaves. Vines badly attacked appear to start later and irregularly.

The worms or caterpillars feed only at night, burrowing and resting in the ground during the daytime. Careful search in the earth about the bases of the vines will reveal the culprits. They vary somewhat in color, but are usually dark greenish brown, from one and one-half to two inches long, and about the diameter of a lead pencil. The first attacks usually occur in low portions of the vineyard adjacent to uncultivated areas. A little later in the season the worms at-

tack the growing parts, cutting off the grape clusters and even whole shoots. Growers cannot be too strongly urged to check their ravages at this time.

The only satisfactory remedy known is the poisoned bait used for grasshoppers. This is made by mixing 40 lbs. of bran, 2 gal. of cheap molasses, and 5 lbs. of arsenic. As good or better results have been obtained by the use of a dry mixture consisting of 40 lbs. of bran, 20 lbs. of middlings, and 5 lbs. of arsenic. A pinch of the bait is thrown near the stem of each vine.

Berkeley.

F. T. BIOLETTI.

[The above is written for the vineyardist. In orchards the poisoned bran will be equally effective, although tree tanglefoot, wire netting bands and some similar devices which will prevent the worms from climbing the trunk may also be used. In vineyards such measures are absolutely out of the question, and the only thing left is the poison, which certainly is greatly needed in many cases to save vines and fruit.—EDITOR.]

What Dairymen are Doing.

[Written for the PACIFIC RURAL PRESS by
J. C. LOOMIS.]

"Overcoming Abortion."

A dairyman of Stanislaus county who has a registered bull with which he breeds neighboring cows, has found the following a good remedy to check the spreading of abortion. A solution of permanganate of potash dissolved in a quart of warm water and injected into the vagina before being served by the bull. The amount of permanganate of potash used is what can be held on the end of the blade of a common penknife. In the past very satisfactory results have been obtained with this prescription, both with his own and neighboring aborting cows.

Another very effective remedy has been used on a ranch in Kings county. The herd was purchased last year and from some 20 head only 4 calves were secured, showing how bad a hold it had secured. In this case corrosive sublimate was used with warm water. This comes in tablet form and can be purchased at almost any drug store with directions for using. Where a cow had aborted, two tablets were dissolved in a quart of water and injected every day until discharge ceased. The others in the herd were treated in the same manner every other day. The sheath of the bull was thoroughly washed out with the same amount whenever he served a cow. That it has made an improvement can be seen from the fact that out of eleven cows calving so far this season but one aborted.

Results of Better Hog Feeding.

Good feeding is a hobby with a good many up-to-date farmers and is becoming more popular all over the State, but very few can tell the exact results of their extra efforts, in black and white. An exception to the rule was found on the ranch of George Farmer, located northeast of Hanford, in Kings county. Here one finds a systematic record kept of all the feed purchased, quantity fed, and the results of same. Grade Guernseys have been kept on this dairy for years, and through careful selection and systematic testing one finds a herd of grades which are hard to beat and seldom equaled in the way of butter-fat production.

Along with his dairy, Mr. Farmer, having a plentiful supply of skim-milk, raises hogs, but unlike most others, does not depend solely upon skim-milk and alfalfa pasture to get the most out of that end.

Three years ago, while having a lot of young pigs to fatten, a ton of cocoanut oil cake was purchased and fed with the skim-milk, and the results were so good that it has been continued until the present time. Up to last fall the results were figured for the year as a whole, but now each lot of pigs are being kept track of separately and for this reason we are not able to compare the results of the good feeding with ordinary feeding.

The lot Mr. Farmer is now fattening is getting only alfalfa and skim-milk and when they are finished he will be able to tell exactly what his gains have been through better feeding. How-

ever, one can see from the gains and amount of extra feed given, as stated below, that his results have been away above the average.

The cocoanut oil cake costs from \$35 to \$38 per ton laid down in Hanford. This makes it more expensive than in most places, the freight being high on ton lots, the way Mr. Farmer has bought in the past.

October 25th Mr. Farmer bought 15 head of Poland-China grade pigs weighing an average of 54 pounds or a total of 810 pounds. When weighed November 25th, twelve of them weighed an average of 94 pounds, or a gain of $1\frac{1}{3}$ pounds a day per pig for 30 days. When weighed on December 8th, the 15 weighed an average of 106 $\frac{2}{3}$ pounds, or a gain of one pound per day per pig for 13 days. When weighed December 27th the 15 weighed an average of 117 pounds, or a gain of $\frac{2}{3}$ pound a day per pig for 19 days. When sold January 27th the 15 weighed an average of 150 pounds, or a gain of 1 pound a day per pig for 30 days. During the latter part of December the cold weather set them back considerably, and in the latter part of January the supply of oil cake was exhausted, so they were fed pumpkins and other available feeds.

The only difference in feeding other than that usually fed on most dairies was the addition of $7\frac{1}{2}$ pounds of oil cake into the skim-milk barrel night and morning. This made an additional expense of 1 pound per day per pig, or at the rate of \$38 per ton, 0.019 per head. Figured for the 90 days from October 27th to January 27th, this makes a total of \$1.71 extra cost per head, and in return we find an average gain of 96 pounds per head, or a little over a pound per day.

Butter in the Free Market.

There is a great deal of talk nowadays about the middleman's profits, etc., and for this reason the Public Free Market at Fresno was started. Primarily these markets are for the benefit of the producer of vegetables, fruit, meat, etc., but a new product has been put onto the market lately in Fresno, which is usually considered a staple article here in California. This is the butter of the Kerman Creamery, and instead of selling for 35 or 40 cents per pound, the purchaser is able to buy first-class butter for 30 cents, cutting out the middleman entirely, thereby making a saving of 15% to the consumer.

The reason for this is what is known as a butter war, carried on between two creameries, and, like most other business where competition is keen, the buying public usually benefits thereby. However, we give the following to show what the free markets might accomplish in lowering the cost of living if everyone patronized them—which they don't—and if the producers were all to sell direct to the consumers.

For some time past the Kerman Creamery has been crowded out of their share of the Fresno business by the merchants in Fresno, and although their product was first-class, they could not "get in," so to speak. Every fair means known was tried, and finally, in desperation, a booth was opened at the free market and butter was put to the wholesale price.

Now this was the regular price paid by the grocers, so in order to meet this cut they would be compelled to handle their butter at actual cost. Of course they would not do that, so they made a kick to their creamery.

With butter-fat at 28 cents plus a premium, the other creameries are forced to lose money if they cut from 30 cents. However, this is what they had to do, with the result that they are losing money on their product while the Kerman Creamery is getting as much money for their product as usual.

While this, of course, will only be a temporary war, it would seem that if all products were sold in this way the producer would sell more, and the consumer would be able to buy a great deal cheaper.

[We should say that the "war" was a rather unfortunate thing. Nearly all the butter sold in Fresno groceries comes from the Danish Creamery of Fresno, a fully co-operative creamery that is one of the most successfully managed in the State, and one with a State-wide reputation for the excellence of the butter produced. As we understand it, the grocers have been glad to pay a good bonus over wholesale price for this butter, which would be a good reason for not wanting to buy butter from other creameries. That extra price went back to the dairymen. If that market is restricted on account of the "war," it will simply mean that the butter will have to be shipped elsewhere and the freight and a part of the premium for quality taken from the dairymen. Of course, this has little to do with the general advantages to producer and consumer of the free market, and the Kerman creamery has a right to sell any way it wants. In this case a part of the advantage in cheap butter to consumers is at the expense of local dairymen.—EDITOR.]

WARTS ON COW'S TEATS.

A trouble which the milker has sometimes to deal with is that of chaps and warts on cows' teats. Warts appear on any part of the animal, and wherever situated, always detract from the appearance of the animal. In all cases warts are a disfigurement and the majority of them prove a great inconvenience, especially when they form on parts where most offensive, such as the teats or lips. Some stockmen appear to take practically no notice of warts, and allow them to grow to great sizes on the cows. This is a sign of great carelessness on the part of the person in charge of the cows, as the larger the warts are and the longer they have been growing, the more difficult will be their removal. In this case it is painful to the cow when milked, therefore warts and chaps should be got rid of as soon as possible. Many people fail to get rid of warts because they think it can only be done with great difficulty or by tearing the wart bodily away, but this is not the case. When cows are milked twice a day it does not seem to afford much opportunity to get rid of warts. To use any substance of a poisonous nature for the wart is dangerous in many ways. When the teats are chapped only, some kind of soothing ointment should be applied, and for this purpose carbolized vaseline, and other preparations may be procured from the chemist. This will heal the teat up in a short time, and allow the milking to be carried on without any discomfort to the cow. In the case of warts, when small they can be generally got rid of by touching them with caustic soda. Another simple remedy, and one which in many cases has been found to be successful: rub the wart with vinegar, then while it is still wet dust it with dry carbonate of soda. If this is done after each milking, the warts will gradually get smaller, and finally disappear.—C. W. Walker-Tisdale in Farm and Home.

HAY AS AGAINST GRAIN.

In harvesting hay practically the whole of the straw is removed, and in this way the land loses a large quantity of plant food. In stripping, the straw is left, and can be plowed in, so that the soil is not impoverished to any extent. It is quite certain that two crops of hay will deplete the land as much as three crops of grain when stripped.—Geo. Valder in Agricultural Gazette, New South Wales.

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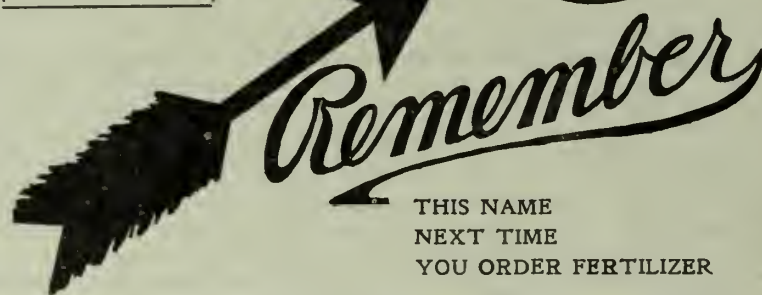
VALUE OF NATURAL MESQUITE

To the Editor: In reply to the inquiry in the issue of April 12 regarding mesquite tree, will say that I have lived for 30 years where there is nothing in the shape of timber but mesquite and cottonwood. The principal States for mesquite are Texas, Arizona and New Mexico. As to the culture, it would be a waste of land and time. It is valuable only when you go on a new piece of land till you can use it up for posts for barbed-wire fences and for fuel. For either, it cannot be beat. I think a sound post six inches thick will last a thousand years, and that is long enough for the ordinary man. Have taken some up, after 20 years, which had the sappy smell just as they did when green. Only the sap or white wood was rotted away, which was only about half an inch thick. They are of slow growth and rather crooked, would require 20 years to get one big enough for posts, and then it would probably only make one or two.

There are three kinds of mesquite. One is of the cat's claw, and one the mesquite proper, which has a bean something like the black locust. The third has pods from one to one and a half inches long, like a spiral spring or alfalfa seed pods, with seeds placed similarly. The tree somewhat resembles the black locust, only it is very forked and scrubby.

The fattest horses I ever saw had

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are scientifically prepared. Years of study and experiment have enabled us to produce a perfect soil tonic—a tonic that refreshes and revives the earth and gives it double yielding qualities.

If you think you are not getting all that's possible from your soil, we would like you to try these wonderful fertilizers. There is one for every purpose, and if you tell us what kind you need we'll give you some interesting information on the subject.

We must have a pretty good product or we wouldn't be doing such an enormous business. We are the largest manufacturers of fertilizer on the Pacific Coast.

Write Us At Once For The Fertilizer You Need. You'll Be Neglecting An Opportunity To Double Your Dollars If You Don't. Address

Hawaiian Fertilizer Co.

244 California St.

SAN FRANCISCO

THE
FERTILIZER

HAWFERCO

THAT
DOUBLES THE
DOLLARS



TEA

By Parcel Post

Postage paid by us

Prices:	16-oz.	15-oz.
San Francisco prices for 16-oz. full weight packages	50c 60c 75c \$1.00	Parcel Post prices for 15 oz. packages 47c 54c 70c 94c

Flavors: Basket-fired Japan; Ceylon; Formosa Oolong; English Breakfast (Black); Family Mixed (black and green).

The cost of the sixteenth ounce is subtracted from the San Francisco prices to allow for the weight of the wrapping. The postage is at our expense.

Save money. Buy direct from the importer. Get quality.

For fifty years we have been importing superior teas for our fine trade. Goldberg, Bowe & Co.'s name on the package as the importer is a guaranty of purity as well as quality. To create a nation-wide distribution we offer fine teas by parcel post, prepaid. New crop, selected teas, parcel post packages, 15 ounces of tea, postage paid. (Select by flavor.)

GOLDBERG, BOWEN & CO., San Francisco

Ask for Catalogue

EXCELSIOR HOOK
FOR CITRUS AND
OTHER LIGHT
PROPPING

TREE SUPPORT

SPRING LOCK HOOK
FOR DECIDUOUS PROP-
PING AND TRAINING
OR SHAPING

HOOKS ARE MADE OF FLAT
GALVANIZED STEEL, 1 1/4 INCHES WIDE.



BETTER AND CHEAPER
THAN UNSIGHTLY PROPS

Will last as long as the Trees.

Prices per 100,
F. O. B. Pomona, Cal.

Excelsior Hooks... \$1.50
Spring Lock... 3.00

Wire extra.



RANCHERS MANUFACTURING CO., Pomona, Cal.

HORSE MANURE AS A FERTILIZER

Highly recommended by the U. S. Department of Agriculture, Washington, D. C. Write to them and ask for Farmers' Bulletin No. 192, "Barnyard Manure." When you want manure, write us and we will quote you.

PACIFIC MANURE & FERTILIZER CO.,
429 Davis St., San Francisco, Cal.

"CALIFORNIA FRUITS AND HOW TO GROW THEM."

For sale by PACIFIC RURAL PRESS, 420 Market Street, San Francisco

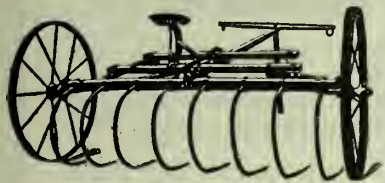
SHAWCO HAY TOOLS



MILWAUKEE MOWERS
AND RAKES.

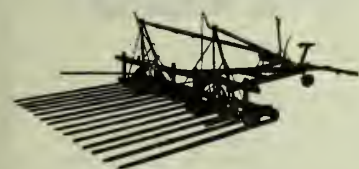
Lightest running.

Latest improvements.



SHAW BUNCH RAKES.

We build them for Western trade.



VICTOR BUCK RAKES.

Write for catalog and prices.

THE H. C. SHAW CO.
STOCKTON, CAL.

DO YOU WANT TELEPHONE INSURANCE?



The Kelllogg telephone gives you telephone insurance; better and cheaper than insurance. Assurance that you will always be in communication with your neighbors, your merchants, your commission men and the outside world. Assurance that the repair man will not be needed, that your telephone will give you perfect service—not for a few months, but for years.

The Kelllogg telephone has long been the standard of good telephones. Every piece that is used in the manufacture is made from the best obtainable material, by the best workmen it is possible to procure.

You cannot afford a telephone that is always out of order. A telephone that breaks down when you need it most is an expensive investment.

Our booklet on Farm Line Construction contains all the information you need to install your own telephone.



Send for the Booklet

CANNOT CAUSE A FIRE IN YOUR HOME

Build Your Own Line

Send for this bulletin today.

Kelllogg Switchboard & Supply Co.

88 First Street
San Francisco, Cal.

GIANT WINTER RHUBARB

This year's yield \$1000 per acre.

How much did your orange crop bring?

PLANT NOW—April, May and June best time to plant for a crop by November. Plants now ready.

WRITE FOR INFORMATION.

J. B. WAGNER,
(The Rhubarb Specialist)
Pasadena, Cal.

nothing but mesquite seed diet, but one acre of mesquite land will grow as much barley in one year as it would of the seed in twenty. The only way it is valuable is when you can get it in its natural situation, where it has been growing for hundreds of years, then it is large enough to get some good out of it.

The wood has a color something like the black walnut. It is very hard but not tough. It is very thorny, and if one was cultivating it he would always have trouble with stock scattering the seed, as every seed will grow that a cow drops. I remember once of manuring an orchard with such manure, and had to dig up young mesquite trees for the next five years. It thrives best in countries where the mercury runs from 25 up to 120 degrees.

R. R. CARTWRIGHT.

Calaveras county, Cal.

[Although climatic conditions in the Hawaiian Islands are radically different from conditions in which the mesquite is native, as described above, it might be interesting to state that the mesquite is becoming of great importance there and has been for many years. As our memory goes, the first tree was brought to Honolulu in 1837 by a Catholic missionary. This tree, or what remains of it, can still be seen. The tree has spread over large areas of formerly waste land down near sea level, where winds were strong, soil sandy, or at least poor, and rainfall quite scant. Given a start under such conditions, before many years it turns a sandy waste into a green valley, the increase coming almost entirely through the distribution of seed by means of horses and cattle. With a milder and moister atmosphere than is found in the native conditions, and also a very much better rainfall, the growth far exceeds that told of by Mr. Cartwright and groves of no great age give an abundance of fuel and cattle feed. The plantation companies owning the land also lease locations to bee-keepers for good rentals. The yield of beans is evidently much heavier than under native conditions and the groves have a high value for range for plantation stock. What the approximate yield is, we could not state offhand. The falling leaves, the manure from the stock, the roots and other vegetable matter bind the top soil together and give opportunity for a fair growth of grass. Altogether it improves the soil greatly and is of great value for fuel and cattle feed, besides changing the appearance of the country for the better. The trees do not come up thickly, but leave lots of room for grass and stock. Nothing like this can be expected in California.—EDITOR.]

Hanford Nurseries

CLARKSTON, WASH.

TREES

That will Grow.
That are True to Label.
That are Free From Disease.

By arrangement with the Vineland Nurseries Company, we offer a limited number of

Red Gravenstein

Apple Trees for Fall Delivery.

See what Prof. E. H. Van Deman says of this wonderful new apple:

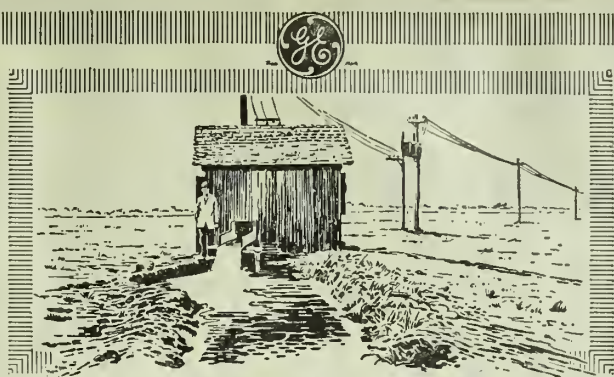
"For two years past I have seen the Red Gravenstein Apple at some of the fruit fairs in the West, and among them the National Apple Show at Spokane. I have also eaten it, and it is a true Gravenstein in every particular except color. In this respect it far surpasses the old variety, because it is almost solid red and exceedingly attractive. I think this difference will cause it to sell even better than the common Gravenstein, from which it is a bud-sport."

Hanford Nurseries

CLARKSTON, WASH.

Drawer 6.

AGENTS WANTED.



Why Electric Motors reduce the cost of Irrigation

Old fashioned ways of pumping were expensive—yet even they led to better paying crops. Now, with the modern way—by electric power—you may have not only better, but less expensive irrigating.

The use of electric power saves time, labor and cold cash—that has been proved to be just as true on the farm as in town. Its economy increases your profit—take advantage of it to do your irrigating better and cheaper with one of the many types of

G-E Electric Motors For Farm Use

Here are some of the reasons why so many fruit growers, stockmen, gardeners and general farmers now use G-E Motors instead of other forms of power.

Water can be used when and where you want it. No extra help is needed as G-E Motors need no watching and they work 24 hours a day. As G-E Motors have few parts—repairs and wear amount to practically nothing. G-E Motors can be controlled a mile or more away—from house, barn or wherever you choose. G-E Motors do not increase your insurance cost—they do reduce your fire risk.

Besides all this, electric service also lightens woman's never ending domestic tasks—cooking, ironing, running the churn, sewing machine or vacuum cleaner.

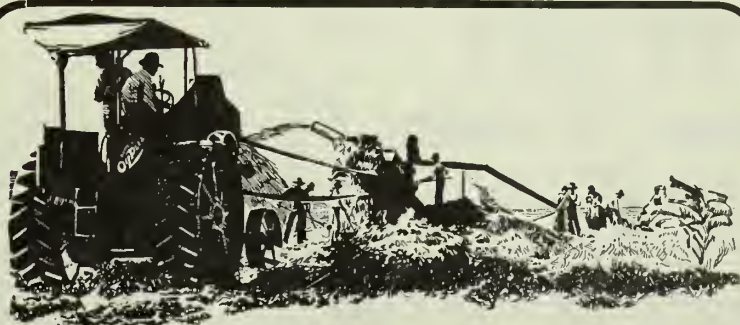
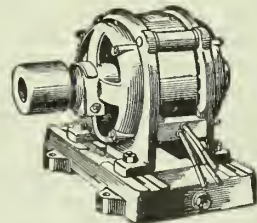
Again, electric service provides light to shorten the long evenings and illumine the gray mornings.

The General Electric Company will, on request, gladly answer all questions relating to the use of electric power for farm and market garden irrigation. Send today for booklet about farming with electricity.

Write to the nearest office of this Company.

GENERAL ELECTRIC COMPANY

Los Angeles San Francisco Seattle Portland Spokane Denver Salt Lake City 4070



Thresh When You Should

Don't depend on the custom man, board his men, feed his engine, and work when he wants to.

Thresh your grain with a

Rumely Grain Separator

and do it when you want to. You can thresh 500 to 1,000 bushels a day on your own place, with a small outfit, and take care of your neighbors' work as well.

Rumely Separators have roomy cylinders with special teeth that thresh all the grain from the heads, and their extra large grates get practically every kernel—none of it goes through the stacker.



15-30 h.p.

—the one you run with cheap kerosene—will furnish cheap, reliable and unusually steady power for your separator—besides being a big help all the year round—plowing, hauling, husking, baling, etc.

This combination should be looked into—write for catalog on Rumely Separators and Data-Book No. 353 on the Oil Pull. Ask the name of our nearest dealer.

RUMELY PRODUCTS CO.

(Incorporated)

Power-Farming Machinery

SAN FRANCISCO, CAL.:
75 Fremont St.

LOS ANGELES, CAL.:
2036 Bay St.



There's Money in the AIR

It is yours up to the sky if you will take it.

Do you know that every ton of alfalfa, beans, peas, etc., you grow takes from 25 to 80 pounds of nitrogen from the soil?

How much of this valuable element do you replace?

Many of your neighbors are taking dollars from the air by inoculating their seed with

FARMOGERM

This is a practical preparation of nitrogen gathering bacteria, easily applied to the seed before planting, at an expense of less than \$2.00 per acre. We can refer you to many users who have been rewarded with 200 PER CENT CROPS. It is a permanent fertilizer where the same crop is repeated.

Home Garden Size 50 cts.

Combination culture good for Sweet Peas and Garden Peas and Beans.

FOR FIELD SEEDS SPECIFY CROP TO BE GROWN

Farmogerm booklet and complete 1913 Seed Catalogue free if you address Dept. O

German Established 1871
SEED & PLANT CO.
326-328-330 SO. MAIN ST.
LOS ANGELES, CALIFORNIA

SPRAY

WITH THE DEMING PUMPS

An ideal high pressure power sprayer, with utility engine, agitator, 200-gal. solution tank, hose, nozzles. Complete, ready for operation.

GUARANTEED

best in design, workmanship and materials. Purchase price cheerfully refunded if not satisfactory or found as represented.

SAVE

on your first cost and half your marketing expense by spraying your trees with a DEMING.

NORMAN B. MILLER
503 Market St., San Francisco.
AGENTS WANTED.

SEEDS

THE BEST ON THE MARKET

All Fancy strains of Vegetable, Flower or Tree Seeds.

Get our catalogue describing same with cultural directions for California.

6 pkts. of our Famous fancy Asters, named, best on the American market, 50c.

¼ lb. Lettuce, our fancy Los Angeles Market variety, 25c.

MORRIS & SNOW SEED CO.,
425 S. Main St., Los Angeles, Cal.

100,000 Sour Orange Seed-bed Trees

Navels—Valencias—Tangerines

SOUTHLAND NURSERIES,
R. D. 1, Pasadena and Terra Bella,
Tulare Co., Cal.
F. H. DISBROW, Prop.

CO-OPERATION OF BERRY GROWERS.

(Continued From Page 513.)

for organization and for the industry. The whole difficulty of local buying of farm produce causes one of the greatest evils in the farm marketing problem, is one of the greatest causes of poor prices and gives one of the greatest opportunities of success to the growers' organization and convenience to the big buyer. A growers' organization governs the price paid to outsiders, after the organization is in good working order, and makes a lot of dickering with outsiders unnecessary. Anyway, it appears clear that the ability of the cannery to get lots of berries in one simple business deal has had a lot to do with making prices go up from \$15 to \$20 per ton since the organization was started.

The union, as said before, is a stock company. The original capital was \$5,000, with shares \$10 each, berry-growers only to take stock, and the amount of stock for one party limited to fifteen shares. Only this spring it was decided to increase the capital stock to \$50,000, so that the warehouse and other property could be purchased outright instead of leased and other advances made.

The union, like any company, buys berries and other goods. Rather, the berries, on the usual plan, are bought on contract from members or non-members on the same terms, and shipped or handled on definite charges. Some berries are bought outright, but very few. Where it is unlike a disinterested buyer is in the fact that the directors and members, being all growers, have the main idea of getting good prices for berries, and dividends are a secondary consideration. The charges and profits are gauged to be only a safe margin over expenses and to make a fair interest on the money. The earnings go to dividends or stockholders, and the dividends have always been fair on the investment, but never large.

BUYING GREATEST.—If it were merely a question of selling berries, the union would deserve rather slight attention, but though termed the Berry Growers' Union, the berry business is in a way only a secondary part. The organizers decided that the obtaining of supplies for their members was nearly as important as selling the products of their members' farms, and organized with the intention of handling feeds, spraying material, and such goods. In this it has been the biggest thing in the community, and last year did a selling business, to the community, that is, of \$106,000 or thereabouts, while the sales of berries ran about \$20,000 below this figure, though more than three-fourths of the output of the whole district, which is about 2,500 tons, is handled by the union. That is why the union is a big institution, and can give farmers elsewhere something to think about. It has also conducted the business so as to earn the unanimous approval of the community, as far as a community could be expected to be unanimous about anything, and the business jealousies usually developed by a big buying organization of farmers have been inconspicuous.

All this buying has been of just the three classes of goods: feeds, spraying and orchard material, and fertilizers. No groceries, hardware, plows and such goods have been handled, but the big warehouse is none too large for the hay, grain, seeds, and other things that are handled in it. Although the busiest time is naturally in the berry season, the other business keeps the house and about seven persons going all the time.

All this business is done on a strictly commercial basis; the goods are carried



Are These Fellows on Your Trees

Mr. Citrus Grower?

If they are get rid of them for they are a serious pest. They are the dreaded red spiders—one of the worst enemies of the citrus grower. They suck the very life out of a tree and if let alone will make the healthiest orchard lose its vitality. For a safeguard and sure exterminator

Use Yel-Ros

(UNIVERSAL ORCHARD SPRAY)

it not only kills the "insect" itself but also the egg. That is not a mere statement—it's a proved fact. Order this spray at once. Don't wait until you must have it—when your trees are laden with this deadly "insect." "An ounce of prevention is worth a pound of cure." Yel-Ros is both a preventive and a cure and is the cheapest effective treatment.

Send for our 1913 Spraying Calendar. It costs 25 cents and is well worth it.

A book on spraying sent free of charge. Address

Insecticide Department—PAUL R. JONES, Entomologist

BALFOUR, GUTHRIE & CO.

350 California Street

San Francisco, Cal.

SEE THE DIFFERENCE

These two bunches of grapes were picked in the same vineyard, both from the same kind of vine.

THIS VINE IS STARVING TO DEATH

On the other hand

THIS VINE HAS BEEN FERTILIZED

Is there any need of our asking Which is the more profitable?

Send for our FREE BOOKS of facts telling what our fertilizers are doing, and what they will do for you in your orchard, your vineyard, or your farm



The Pacific Guano & Fertilizer Co.

607 Alaska Commercial Bldg., San Francisco

Largest manufacturers of Fertilizers, Poultry Foods and Bone Charcoal on the Pacific Coast

Waterloo-Boy Hopper-Cooled Gasoline Engine

1½, 2½, 4, 6, 8 and 12 HORSE-POWER

MATERIAL, WORKMANSHIP AND POWER ABSOLUTELY GUARANTEED

THE WATERLOO-BOY is positively the best engine for running machinery such as feed cutters, grinders, grindstones, cream separators, washing machines, churns, sheep-shearing machines, lethes, drill presses, pumps for irrigation purpose, etc., etc. Further information free on request.

FREE CATALOG—A catalog containing valuable information about stationary engines of every description, their design, construction, care and operation. This catalog tells you—shows you—in clear, easily understood and concise language, all about our line of superior gasoline and distillate engines. You will want this catalog if you are interested in windmills, tanks, pipe fittings, pumps, etc. Write for it today—NOW. Our money back guarantee is your protection.

THE NATIONAL CENTRIFUGAL PUMP With Ring Oiler Bearings, Elbow, Two Bearings, Large Throat. There is nothing more simple or easier than running a "NATIONAL."

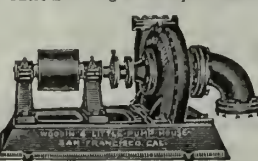


Illustration shows a new centrifugal pump which we have had built to our own specifications. This pump has many features not found in other pumps of this type.

Only the best materials enter into the construction—thoroughly tested and inspected before being shipped—fully guaranteed.

WOODIN & LITTLE PUMP HOUSE
33-41 FREMONT STREET
SAN FRANCISCO, CAL.

THE SCHMEISER PORTABLE AUTOMATIC DERRICK

Saves Money in Handling Hay

The problem of quickly and economically handling loose or baled hay is easily solved by using this derrick. No modern farm should be without it. It can be moved from place to place as easily as a farm wagon. Can also be used for hoisting dirt, raising building materials or heavy loads of any description.

If You Write Us

we will explain in detail just how this derrick can save you time, labor and money.

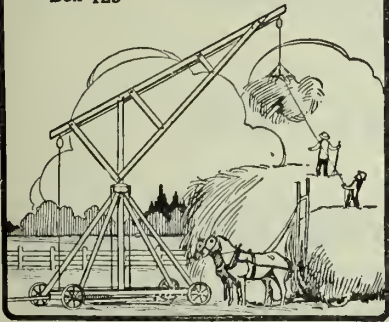
Write us NOW.

Piles up Hay and
Piles up Profits.

Schmeiser Manufacturing Co.

Davis, California

Box 123



Caldwell Fruit Pitter

One customer writes: "Fruit cut by your machine more evenly divided, and smoother after being dried, than that cut by hand." Another says: "We have six tons of dried fruit testifying to efficiency of your machine," etc. Fruit Growers! Avoid labor problems with resulting vexation and loss and save money by writing us now before rush begins.

JEROME CALDWELL, Manager,
3214 E. 5th St., Los Angeles, Cal.

EUCALYPTUS SEEDS

In large or small quantities, 40 species to select from. Write for free pamphlet, "Eucalyptus Culture." It tells you how to sow the seed, raise the plants and plant out in the field. Also describes all the leading kinds, gives their uses, etc.

Trial packets 15c each, 4 for 50c. Write for prices in quantity.

THEODORE PAYNE,

345 S. Main St., Los Angeles, Cal.

SPRAY WITH

HEMINGWAY'S LEAD ARSENATE

EASY TO MIX
STAYS IN SUSPENSION
HONEST PRICES
HIGH ANALYSIS

15% Arsenic Oxide guaranteed.
Send for booklet and prices.
Full stocks carried by Coast Agent,

C. HENRY SMITH,

California and Battery Sis., San Francisco, Cal.

Hemingway's London Purple Co., Ltd.,
17 Battery Place, New York.

LEONARD COATES NURSERY COMPANY

We are more than doubling our hardy ornamental stock, particularly trees and shrubs that need very little water. It is evident that planters appreciate their value. Call at Morganhill, Cal.

in stock and a definite price is put on; the goods are not handled on commission or on any fixed margin. The only thing is that the margin is kept low enough to make a fair profit and no more on everything, and some one thing is not kept at a margin of 100 per cent or some such figure simply because it would be possible to get such a price. The amount of business done shows whether it makes a saving for the former. How much of a saving this is, is beside the question for the time being.

Just one little illustration about the help such an organization can be to the customer. This is not a hay country and never was. Nearly all of the hay used to be brought from the Sacramento valley, though more is grown here now. The freight was excessive, though that did not especially worry the dealers, because they could put up the price just that much. The growers' organization felt the injustice and obtained a reduction of \$1.15 per ton in the freight, which is a nice little difference for the consumer.

Well, there isn't much more to be said. The union has succeeded in shipping more berries East than ever were shipped before, and has gotten a better price than could be gotten if they were sold at home. Nearly all of the largest berry producers are in the organization and many of the small producers; it handles three-quarters of the berries produced in the industry and has been put on a much firmer basis than before. It has a fine warehouse and equipment, will have a \$2,000 pre-cooling plant to aid in the shipping business next season, handles a great quantity of eggs, cherries, and other produce at a small but fair margin of profit, and has performed a most important service in buying goods for the farm at a fair cost to the farmer.

APPLE GROWERS' UNION.—There need be but few words for the Apple Growers' Union, as it is organized on practically identical lines as the Berry Growers' Union. It is beginning its third year now, and from the start has handled the larger part of the apples produced in the district. It is growing in numbers and in the amount of fruit handled. The Berry Growers have approximately 200 members, the Apple Growers about 180, though more are joining and will before the season opens.

Although the apple business is far and away more important than the berry business in the district, the Apple Growers' Union, in a way, takes second place to the other through having no occasion to purchase goods for the community. The membership of both is duplicated in large part, and as the interests are similar, evidently there is no good reason why they should not ultimately unite if they care to.

There is a funny little proposition about the start of the Apple Growers' Union. Gravensteins have always been a good thing around Sebastopol, but up until 1911 they were sold to packers like most shipping fruit is sold. In 1910 there was a big demand for apples and war of the packers, so that prices went skyward; so high, in fact, that rumors went that the packers had dropped quite a little money. Rumors also went that the packers were kicking themselves and had decided to make up from the 1911 crop what they had lost in 1910.

Co-operation was popular through the success of the Berry Growers' Union, which had been operating for two years, and leading growers hurriedly got together and organized, bringing in a big acreage and buying up so much of the outside apples that the little independent fruit left was only a drop in the bucket. That first year the apples were sold through a broker for a definite com-

mission. It was a good year and everything went nicely. The second year the union acted as its own distributor, selling 70% of its fruit-f. o. b., and, despite the poor season for prices everywhere, netted enough to readily sustain the reputation of profit of the Gravenstein apple.

The funny thing in the Apple Union case is that it followed a very profitable

year under the old system, while most growers nearly have to be starved into co-operation. Still, those Gold Ridge people know a good thing when they see it; that's why the two unions are so successful; that's why they moved to the Gold Ridge; and anybody that visits the country and sees the beautiful, well-kept homes and farms will say so, too.

Apply Nitrate of Lime as a Top Dressing Now



TRADE MARK

13% Nitrogen

25-30% Lime

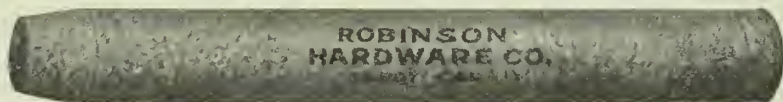
in a soluble condition. The excellency of this combination is appreciated by progressive growers—all over the world. Nitrate of Lime has an immediate and lasting effect.

Write for prices and particulars.

C. HENRY SMITH, Inc.

311 California Street, San Francisco, Cal.

SURFACE IRRIGATION PIPE



We've made surface pipe for years and have learned from the user just how it should be made. We have built and equipped a modern factory with latest and most powerful machines. We make one-piece pipe with 10 ft. long lock seam powerfully grooved and soldered full length. (No long riveted seam to leak.) Smooth collars and sleeves which fit. The most satisfactory pipe on the market. Our booklet B will tell you more. Send for it with prices.

ROBINSON HARDWARE CO., Gilroy, Cal.

IRRIGATION SPRINKLER

(The Campbell Automatic Ball-Bearing)



Placed on 3-4-inch standpipes 16 to 25 to the acre, in a run of 4 to 5 hours, they will, with 25 pounds pressure, distribute perfectly and evenly one inch of water in the form of fine rain. Cover four times the area of any other sprinkler, can't clog up and will last a lifetime.

Price, sample postpaid, \$2.00, or \$20.00 per dozen, f. o. b. Jacksonville. Your money back if not satisfied.

J. P. Campbell, Jacksonville, Fla.

References, Dun, Bradstreet or any Bank in Jacksonville

TO THE MAN WHO IS INTERESTED IN FARMING

MAIL US THIS COUPON

No Second Payment for 4 Years

Imagine what that means. By the time second payment is due the land will have paid for itself.

A Big Market Close at Hand

Whatever you want to raise you will have no difficulty in selling. A large and growing market is right at your door. Transportation facilities are excellent and fine roads are everywhere. Towns, schools, churches and every opportunity for advancement.

10 Years to Pay for Land

if you are really interested mail us this coupon and we will give you every desired detail. No Mongolians nor negroes are permitted to purchase. We want the better element of settlers.

Mail this Coupon NOW.

KUHN IRRIGATED LAND CO.
412 Market Street
San Francisco, Cal.

If you want to better yourself financially mail us the coupon below and we will explain how you can do so. We will tell you what this land has produced and of the many successes that have been made on it. The information we will send you will not be of promise—we will tell you of accomplishment. Land on the

Kuhn California Project

will produce anything. At the present time it is giving a prolific yield of citrus and deciduous fruits and field crops of every description. Plentiful water supply guaranteed. Hogs, cows and chickens thrive and multiply.

KUHN IRRIGATED LAND CO.,
412 Market St., San Francisco.
Kindly send me full particulars about the Kuhn California Farm Project.

NAME _____

ADDRESS _____

16 _____

samples which have been placed before them of paper twine and they hope that some of the more enterprising growers will make trial of this twine." As far as that goes many wool growers are using it, but the more that use it, the better the price that will be made in comparison with the poorly prepared wool.

ERADICATE CODLIN MOTH.

There is no chance to eradicate the codlin moth in large apple districts where it has become established. In some other fruit sections, Humboldt county for example, it is found only in spots and there might yet be time to utterly eradicate it, as is being attempted. From the Renmark Pioneer, South Australia, we find the following account of the way they tackled a few trees down there that were found infested.

"The fruit was gathered and boiled in a dip tank, the trees were cut down to the stumps and burned, the weeds around the trees were hoed up and they and the stumps sprayed with kerosene and fired. The inspector also left a tin of vaporite with Mr. Richardson, (the owner) who promised to spray and work it into the earth about the spot.

Mr. Taylor afterwards made a careful inspection of all apple trees in the neighboring blocks, but without discovering any signs of the moth. He accounts for its presence in Mr. Richardson's trees by the very probable theory that that gentleman must have unconsciously brought some grubs with him in his belongings when he came to Renmark from his Nuri-oopa property last August."

The owner of the trees gladly permitted this destruction for a moderate compensation, which was paid by fruit growers voluntarily.

The Fresno Republican states that strawberry shipments from near there to San Francisco will commence this week. The berry business has grown so much that it is thought fully 20 carloads will be sent out this season. Most of the berries will be shipped through the co-operative marketing association formed recently.

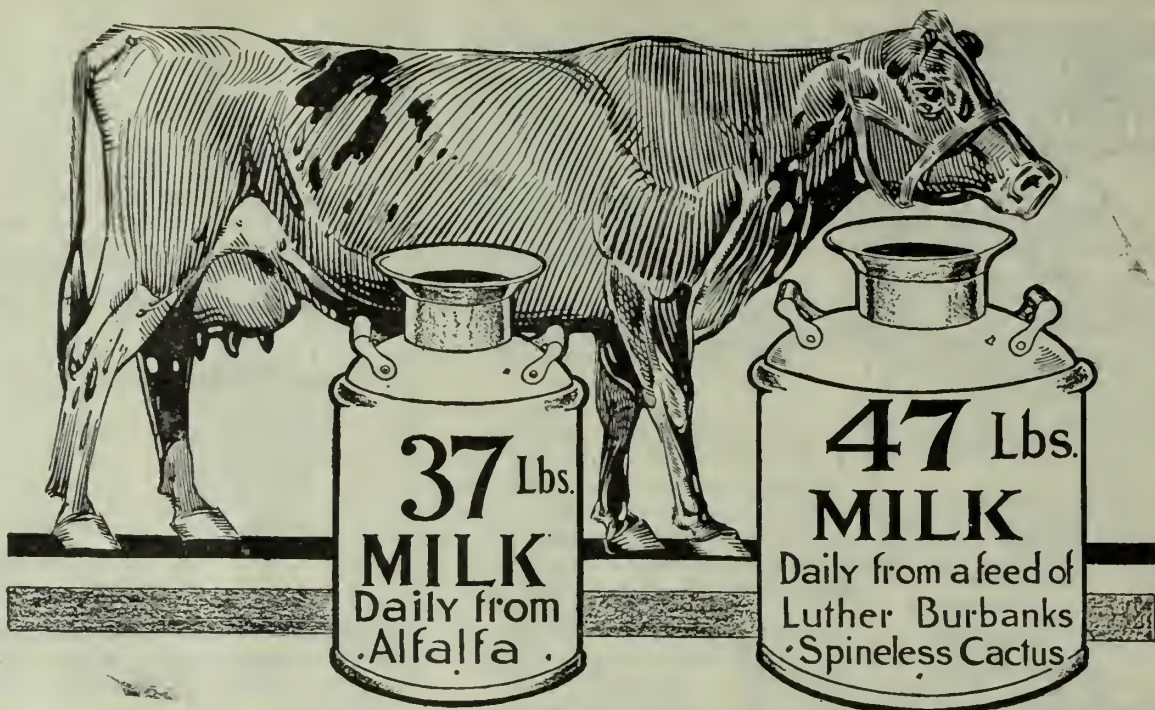
It is stated that the California Almond Growers' Exchange has orders now booked for all the almond crop that they care to sell, subject to approval of price.

FREE! THIS BOOK **HELPFUL HINTS on Pruning**

A practical booklet on up-to-date methods and principles of pruning all kinds of orchard trees, by L. H. Day, Horticultural Expert.

SENT ON REQUEST To Any Orchardist who is a member of a Fruit Growers' Ass'n., and mentions name of same. Sent to others for cost of mailing, 4 cents.

UNION BLIND & LADDER CO.
Manufacturers of the "STAR ORCHARD LADDER"
The strongest, lightest and best orchard ladder on the market, at any price.
3536 Peralta Street - Oakland, Cal.



Cow fed on Alfalfa gives daily average of 37 pounds of milk.

Same Cow on SPINELESS CACTUS ration gives 47 pounds of milk.

This is the story of what happened in an actual test. What Luther Burbank's Spineless Cactus will do as a forage is known to all progressive farmers in this section of the country and this knowledge is a constant source of increased profits. YOU, too, should profit by this experience.

There is a wonderful story in the evolution of the thorny cactus to the Luther Burbank Spineless Cactus, but it's no more wonderful than the story of increased profits that come from its use as a forage for cattle, hogs and poultry. Send for our Burbank Spineless Cactus Book RP and learn the details of the practical test mentioned above—also a number of others equally as important.

Luther Burbank's Spineless Cactus will grow almost any place where vegetation of any character will grow—will thrive on even three or four inches of moisture a season—needs little or no attention.

One may reasonably expect under ordinarily favorable conditions to obtain a yield up to 100 tons of good forage per acre per year.

On the removal of the slabs from the cactus plant, new leaves or slabs rapidly appear to take the place of the cut slabs and in a short time there is as much feed as originally.

To know about Luther Burbank's wonderful Spineless Cactus is to better your condition on the farm. The demand is reaching tremendous proportions and you should buy now. Write for our Burbank Spineless Cactus Book RP today. It contains Luther Burbank's own story of the development of the Spineless Cactus plant and gives you just the practical information that you ought to have about it.

None genuine without Seal
Trade Mark Registered

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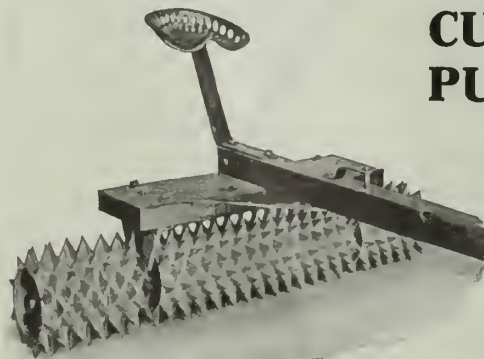
THE LUTHER BURBANK COMPANY

Sole Distributor of the Burbank Horticultural Productions

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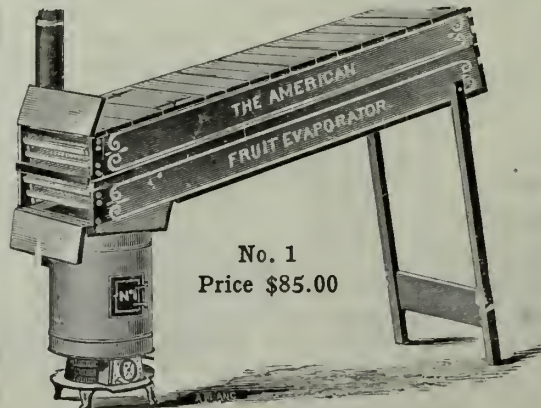
This Seal guarantees a genuine Luther Burbank Production



CUNNINGHAM'S PULVERIZER

It is the only clod crusher on the market that will do the work thoroughly and scientifically for the Farmer, Orchardist, Nurseryman or Gardener. Made in many sizes. Write for further information.

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PORTABLE EVAPORATORS

No. 1.. 8 bushels per day.
No. 2.. 15 bushels per day.
No. 3.. 40 bushels per day.
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No. 5.. 150 bushels per day.

Write for circular.
Order early.

BERGER & CARTER CO.
San Francisco

NORTHERN HARDPAN.

Talking about hardpan, what do you think of this?

At Yakutsk a few years ago a merchant tired of drawing water from the Lena river, determined to sink a well in his back yard. His workmen after digging down a few feet found the soil frozen hard as a rock. Thinking soon to get through the frozen part, the owner ordered the work to be continued. When 105 feet had been reached and there was no sign of success, the project was abandoned.

The Imperial Academy of Sciences at St. Petersburg, learning of the attempt determined to find out the depth of frozen ground at that place, so they set men at

work digging, and when 382 feet had been reached with no indications of success the work was stopped. Subsequently a special scientist descended to the bottom of the round shaft, and after a careful examination declared that the city of Yakutsk stands on ground perpetually frozen to a depth of 612 feet, excepting a few feet at the surface which thaws out each summer.

Beneath the rich wheat lands of Manitoba, just north of the United States, are frozen strata of earth that never thaw. It is likewise a known fact, that the soil of nearly the whole of Alaska is in a perpetually frozen condition, to a considerable depth, only a few feet down from the surface thawing out each summer.



Business vs. Sentiment

We've been telling you from time to time that we want to do all in our power to please you—to go "out of our way" if necessary. Don't think that these expressions of willingness to please are mere talk or that they are prompted by mere sentiment.

Pleasing you is a matter of business with us. It's our **only** business.

"Pacific Service" is "Perfect Service"

PACIFIC GAS AND ELECTRIC COMPANY
445 SUTTER STREET
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BUY A FARM THAT PAYS FOR THE WORK YOU PUT ON IT BOATS STICK THEIR NOSES

into the river banks and take away a can of cream, a sack of potatoes, or a full cargo of farm produce from Rivergarden Farms, lying for 21 miles along the Sacramento. Besides you have railroad transportation and the best markets in the State.

ALFALFA

is the staple crop, growing without irrigation and cutting six times a year, besides two months good pasture. At Rivergarden Farms there will be the richest dairy section in California. The time to get this land is now. The tenants of the former owners have already bought \$100,000 worth.

The terms are very easy. The crops will pay for the land in a few years. Write for particulars to

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Dept. L 23 Montgomery Street

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PROFITS ORCHARD CANNING

One grower made a profit of \$441.82 on 887 dozen cans 3-lb. tomatoes—results obtained from 2½ acres.

Why not you?

Name

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Factory No. 1 price \$130.00.
Capacity 2000 to 5000 daily.

Write for catalog.

BERGER & CARTER CO.

SAN FRANCISCO, 504 Mission St.

LOS ANGELES, San Fernando Bldg.

California Stump Puller



— IS —

Powerful
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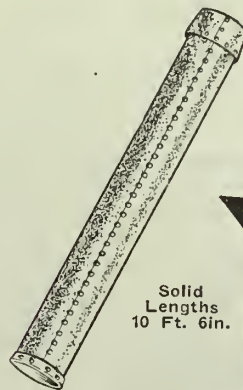
Gets All
the Roots

ONE HORSE WILL PULL THE BIGGEST STUMPS.

Given satisfactory service in California for 20 years.

Write for free book.

CALIFORNIA STUMP PULLER CO., 704 Bryant St., San Francisco.



Solid
Lengths
10 Ft. 6in.

Note The Rivets

It is a known fact that riveted seams are the best and strongest seams.

"Western"

Surface Irrigation Pipe is riveted instead of lock-seamed and therefore gives the most in strength and wear. It is the strongest and most economical irrigation pipe on the market.

WRITE US—NOW

for full particulars about this pipe. We'll show you how you can save money and get better results by using it.

We make Riveted Water Pipe, Riveted Well Casing, Steel Tanks and Irrigation Supplies

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Co. of California.
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Make \$2000⁰⁰ more per Year

You Can Make Big Money With a well machine that makes irrigating wells fast and at a low cost. Demand for such wells is unlimited in California and the entire Southwest. The best and fastest machine for this work and this territory is the **IMPROVED POWERS COMBINED BORING AND DRILLING MACHINE**. Bores thru gravel, sand and clay like a streak of lightning. If rock is struck it drills thru that. Forces casings perfectly. One man and one team can run it. You can make \$1 an hour for your spare time.



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Caustic Balsam****Has Imitators But No Competitors.**

A Safe, Speedy and Positive Cure for
Curb, Splint, Sweeney, Capped Hock,
Strained Tendons, Founder, Wind
Puffs, and all lameness from Spavin,
Ringbone and other bony tumors.
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As a Human Remedy for Rheumatism,
Sprains, Sore Throat, etc., it is invaluable.
Every bottle of Caustic Balsam sold is
Warranted to give satisfaction. Price \$1.50
per bottle. Sold by druggists, or sent by ex-
press, charges paid, with full directions for
its use. If send for descriptive circulars,
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The Lawrence-Williams Co., Cleveland, O.

**LIVE STOCK NOTES AND
COMMENTS.**

[By OUR ASSOCIATE EDITOR.]

That corner of our mind which busies itself with stock can't help directing itself to the organization of the Swine Breeders Association at Davis recently, the men that were there, the fine start that was made, the important facts that were brought out in discussion, the opportunity before the industry. A lot on the matter appeared in these columns last week. One of the things that impresses itself on one's mind is the extra price that was obtained for those grain fed hogs told of by Prof. Thompson. The talk of Prof. Thompson opened up great possibilities and the essential point is the marketing problem—that good prices be given for a good product. On the ordinary live weight prices, all hogs on about the same basis, according to the present system, little can be done. Payments for quality, for dressed weight, are the basic necessity and that means to a big extent a stockyard method of trading, where expert sellers will sell each car of hogs on its merits. Of course, as one will see if he reads the account of this hog marketing, arrangements can easily be made to sell on an out and out dressed weight basis, which will work very satisfactory to all, but the average shipper will continue to sell on live weight. The average man for a long time will continue to raise only common hogs, too, so honors are even, but the desired consummation will be to raise the kind of hogs shipped from the farm, and market them on their merits, which may mean through a stockyard.

This idea receives strong confirmation by the account given of Mr. Lively of the development of the swine industry in the Northwest, where the Union Stock Yards of Portland was the prime factor, not only in getting the hogs raised properly, but in getting them raised at all, or at least in a large quantity. Thus it appears that there is an intimate relation all the way along between stockyards and the most profitable livestock methods on the farm. Either alone may be profitable, but wise farm methods are most profitable when the stock is sold through stockyards, and stockyards work best when the stock is raised properly.

PANAMA PACIFIC EXPOSITION.—It is a most apparent fact that the coming exposition is one of the greatest factors causing the organization of this association, and in a very wide activity in the improvement of all kinds of pure-bred stock. It was pointed out and may well be remembered that the Exposition of itself will have but a temporary influence on the livestock industry of the State unless the stockmen arise to their opportunity. Then it will have a strong and enduring influence. Stockmen will come from all parts of the world. Argentina, for instance, intends to spend an immense sum in connection with the livestock show at the exposition, aside entirely from what her citizens will spend.

The people that will come should be here with the intention of finding where the best stock of the world can be found. The Exposition, if it leaves its mark on the California livestock industry, will leave it because California stock stands high in awards. Visitors who come to look and buy will remember the place where the stock was bred or owned rather than where it was shown. The finest show possible, unless California breeders make an excellent showing, will have little greater influence in California than if that same show was held in New Orleans.

Every award also that comes to California will be of value to all breeders. If only three Berkshire breeders make a big splash and the excellence of their hogs would make breeders from the

A. C. RUBY, Portland, Ore.

C. W. BOWERS, Sacramento.

**RUBY & BOWERS
THE LARGEST HORSE IMPORTERS ON THE PACIFIC COAST**

PERCHERON, BELGIAN, ENGLISH
SHIRE, CLYDESDALE, HACKNEYS AND
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We sell more imported horses than all other firms on the Coast because we are direct importers and give a four-year guarantee which is good right at home. We have on hand at all times the largest and best lot of heavy draft stallions and mares, both American bred and imported, to be found any place in the West. If you are in the market for a high-class stallion or mare, don't fail to give us a call, as we can sell you more genuine horse for the money than any other importer in the business.

Address:

RUBY & BOWERS, Davis, Cal.

We Have Imported More Horses Than Any Other Firm in the United States During the Last Year.

References: American Natl. Bank, Pendleton, Ore. Merchants Natl. Bank, Portland, Ore. First State Savings Bank, Marcellus, Mich. Bank of Yolo, Davis, Cal.

America's Leading Horse Importers

Kansas City, Missouri

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We have just received at our stables in Oakland a large importation of prize winning Percherons. These stallions comprise nearly all of the leading winners at the recent French shows, every animal at maturity weighing much over a ton, and they are strictly stallions of the well known McLaughlin type. We import more, sell more, and therefore can sell cheaper than anybody else.

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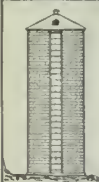
Stables: At Cor. 47th and Salem, in Emeryville, Oakland, Cal.

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Our herd is now one of the best in the State, being rich in Silvertip, Black Robinhood, Longfellow, Empress and Masterpiece Strains.

Prices reasonable, satisfaction sure. Correspondence solicited from interested parties.

OAK GROVE DAIRY FARM,
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PACIFIC SILO

a Concrete Silo with all modern improvements. As permanent as the ground upon which it stands. Especially constructed to meet the requirements of the Pacific Coast States.

CONTINUOUS OPEN DOOR FRONT

Perfect System of Ventilation and Drainage.

The most economical silo to build and to use. Write for "Catalog C" to
DELTA CONSTRUCTION CO.,
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3 past Yearlings from Tested Dams.

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SAN RAMON SHROPSHIRE FLOCK

Purebred and Registered Rams and Ewes
For Sale. Individual or Carload Lots.

PRIZES WON BY FLOCK IN 1912.

CALIFORNIA STATE FAIR, SACRAMENTO—Six firsts, four seconds, champion ram and ewe.

OREGON STATE FAIR, SALEM—Two firsts, five seconds, champion ram and ewe.

INTER-STATE FAIR, SPOKANE, WASHINGTON—five firsts, three seconds, champion ewe.

1st Prize Ram Lamb, Omaha, 1911

INTER-MOUNTAIN FAIR, BOISE, IDAHO—Eleven firsts and seconds, sweepstakes over all breeds, champion ram first and second, champion ewe first and second, and first for flock of one ram and five ewes of any age.

BISHOP BROS.,

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CALVES WITHOUT MILK

cost only half as much as the milk-raised calves. Increase your profit by using

BLATCHFORD'S CALF MEAL

the perfect milk substitute—the best since 1800.

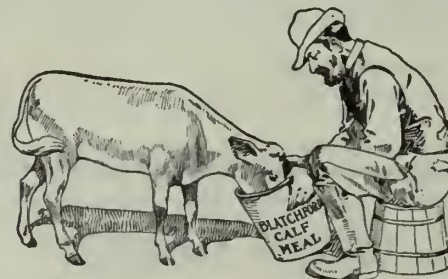
Write today for free book, "How to Raise Calves."

Your name and address on a postcard is enough.

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PETALUMA, CAL.

**PIONEER CENTRIFUGAL PUMPS**

Improved machinery and methods enable us to sell you this pump for less than you can buy any other make.

Our retail prices are less than our competitors' wholesale prices.

We guarantee our pumps the equal in quality and capacity of any. Live agents wanted. Write for circular and prices.

PEERLESS IRON WORKS, Sacramento, Cal.
Mention Rural Press.

**REDWOOD TANKS**

I deal direct with the consumer. If I had agents to sell my product it would mean that I must add to my price as much as the agents' commission would be. My lumber is bought direct from the forest. Latest improved machinery. Up-to-date methods. Redwood Tanks, Pickling Boxes, Peach Boxes, Drying Trays, Egg Cases. A tank 5 ft. diameter, 2 1/2 ft. deep, \$17.50. A tank 6 ft. diameter, 2 1/2 ft. deep, \$18.50. Large stock of tanks of various sizes in stock. Anything made to order on short notice. Spraying tanks. Grape stakes.

R. F. WILSON, 447 W. Main St., Stockton, Cal.

Calves Without Milk

Cost only half as much as the milk raised calves. Increase your profits by using

Blatchford's Calf Meal

The perfect milk substitute—the best since 1800. Write today for free book, "How to Raise Calves." Your name and address on a postal is enough.

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SHROPSHIRE

Pure Bred and Registered

For 1912:

140 Head Yearling Rams
150 Head Ram Lambs

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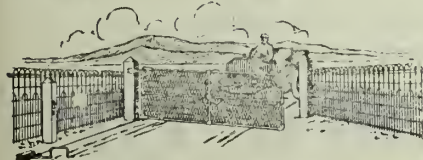
Cutter's Anthrax and Blackleg Vaccines

are given the preference by 80 per cent of California stockmen because they give better results than others do.

Write for Prices, Testimonials and our New Booklet on Anthrax and Blackleg.

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STANDARD AUTOMATIC GATE

STRONG, SIMPLE, DURABLE
EASY TO OPERATE

WRITE FOR CATALOGUE AND PRICES

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LIGHTNING HAY PRESSES

The Old Reliable Steel Pitman Hay Presses.

Write for reduced prices.

THE H. C. SHAW CO.

Stockton, Cal.

SECOND HAND PIPE

Very best quality of selected second hand water pipe and standard casing pipe. All newly cut threads and new couplings attached; asphaltum dipped. Fully guaranteed. At extremely low prices. BUY NOW while the opportunity prevails.

WEISSBAUM PIPE WORKS,
100 Eleventh St., San Francisco.

Orient or Latin America come to California to buy stock they will, while here, visit many other breeders and buy good stock where they see it. It is the same with beef and dairy cattle, sheep, angora goats, pigeons, poultry, or what not. All for one, one for all. The winner will help himself most, but he will help all others no matter what kind of stock are kept. The more prizes California takes, the better for all concerned.

PETITIONS.—The help that the legislature should give in encouraging the breeders may not be given as the bill appropriating \$100,000 for California breeders exhibiting stock, may get lost in the shuffle with the other bills which will not pass nor obtain final consideration. If it is to pass, word will soon have to be sent to senators and assemblymen regarding it. The association passed a vigorous resolution calling for its passage. Yet even if it fails of passage there is still a chance of help from the counties. They are allowed to tax themselves for the exposition and Yolo, or Kings or any other county with fine livestock, may obtain fame for itself by making it possible for its best stock to be shown. Better do that than put up plums and peaches in bottles. Still, as far as that goes, the horticultural and agricultural departments are going to put lots of life in their exhibits, too.

The hog men of the State are also after a change in the methods of awarding prizes for swine at the State Fair. They want five awards in each class instead of three, as in this way many young breeders will get in the money and get a reputation, who otherwise might go home feeling that it was not worth while to raise show type swine and take them to Sacramento.

LOSSES OF LIVESTOCK.—Leaving the Swine Breeders Association, another little fact that has come up is the great losses that have come to stock through the country at large, as shown in a report of the Department of Agriculture up to April 1. The losses of swine from disease were unusually heavy, being 110.1 per thousand, as compared with 89.2 per cent the previous year. That means more than 10 per cent of gross receipts cut off simply by disease, a pretty big cut. Nine-tenths of this loss comes from cholera, and California is making great progress in fighting disease, and for this reason has been suffering less loss than the country at large. The number of breeding sows, by the way, is falling off by about 1 per cent, everything being estimated and not actual returns. Cattle are said to be a little better than in normal condition and the losses are very close to normal, and the same is true with sheep and horses.

SHEEP LOSSES.—And just here we can't help saying that the losses in sheep by April 1, 1913, will not be normal or anything like it, it will be away above normal. The trouble, though, will not be disease but legislation. Wool is near a free trade price, mutton is troubled sympathetically and the prospects are not pleasant. There is one big chance that so many people will go from sheep to cattle that wool and mutton will go up again and prices will partially recover. We cannot smile at the immediate prospects, we can only say, "Grin and bear it." There is even hope for the sheep men to make up a little in wool prices by good packing what is cut off by the tariff reduction. At least it seems to be generally admitted that a difference of a cent a pound might be secured from the manufacturer if certain slipshod ways of handling and packing that let dirt and vegetable fiber in could be overcome. On this point a Consular Report states that the International Committee on Vegetable Fiber in Wool "have been impressed by the remarkably useful and attractive

A straight from the shoulder message to separator buyers.

Beware of separator salesmen who claim that their machine is "just like the De Laval" or "as good as the De Laval."

Such claims are all absolutely false.

Such imitators juggle with words.

Instead of putting into their machine the experience and the the workmanship and the material necessary to make a cream separator anything like as good as the De Laval, they find it cheaper and easier to "claim everything" and make a bug-bear of "price" to keep the buyer from discovering the mechanical shortcomings of their machines.

They go on Barnum's theory that the people like to be fooled and they don't care how they get your money just so long as they get it.

It is unfortunate that the separator business should be burdened with such unfair business methods, but, since it is, it behooves every prospective separator buyer to use care and good judgment in the selection he makes.

Look well to the demonstrated ability of the concern that makes the machine to build a good separator. Avoid buying a machine whose makers have had little separator experience, or who are constantly changing from one makeshift type to another.

Talk with separator users who have learned by experience.

The more you investigate, the more you will find that there is one and only one separator that stands in a class all by itself.

It was the pioneer cream separator of 1878 and it has been first ever since.

You will find that more machines of this make are being sold than all other makes combined.

You will find that 98% of the world's creameries use it exclusively.

You will find that every user of this machine is a booster.

You will find that its makers are so confident of its superiority that you may have a free trial of it alongside any other machine and judge for yourself as to which machine will serve you best.

This machine has over 1,500,000 satisfied users.

It will serve you best, save you most and last longest.

If you want to be sure of making a good bargain buy a

De Laval Cream Separator**DE LAVAL DAIRY SUPPLY COMPANY**

165 Broadway
NEW YORK

101 Drumm Street
SAN FRANCISCO

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SEATTLE



An Up-to-date dairy barn means bigger profits.

Is Your Barn Up-to-Date?

Modern dairying demands modern barn equipment. In this age a modern barn is a necessity. It saves money, time, work and worry. Write us to-day and learn all about



500 Plans of Up-to-date barns sent free of charge.

LOUDEN'S**Steel Stalls and Stanchions, Feed and Litter Carriers**

We will tell you how our Drafting Department will help you design improvements and give you the free use of 500 plans of up-to-date barns all over the country.

Write NOW and learn what is possible in modern barn equipment.

Western Equipment Co. 70 FREMONT ST. SAN FRANCISCO

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REGISTERED BERKSHIRES—Boars and young stock; write for prices; immediate delivery; satisfaction guaranteed or money refunded. Glorietta Stock Farm, Woodland, Cal.

REGISTERED DUROC JERSEY SWINE—Some extra good young boars for sale; ready for service. Best Eastern strains. Ed. E. Johnson, Turlock, Cal.

REGISTERED BERKSHIRE SWINE—Best Eastern strains; bred sows and spring pigs for sale. A. B. Humphrey, Mayhews, Sacramento Co., Cal.

REGISTERED DUROC JERSEYS—No better anywhere. Boars, sows and young stock for sale. Immediate delivery. Jno. F. Daggs, Modesto, Cal.

MULEFOOT HOGS—Prolific, easy feeders, very prepotent. Young stock eligible to entry; also a few grades, cheap. Edouart Bryant, Lemoore, Cal.

REGISTERED DUROC JERSEYS—Young boars and sows for sale cheap. Iowa stock. G. KIRSTEIN, Red Bluff, Cal.

POLAND-CHINAS; large type. The Browning Stock Farm. W. H. Browning, Woodland, Cal.

KNOB HILL STOCK FARM—Reg. Poland-China swine. A. M. Henry, Farmington.

CALIFORNIA NURSERY CO., Niles, Cal. Breeders of Thoroughbred Berkshires.

CHAS. GOODMAN, breeder of High-Class Berkshire Swine. Williams, Cal.

TAMWORTHS—THE BACON HOG. Kennedy Bros., Amsterdam, Cal.

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PURE-BRED REGISTERED PERCHERONS AND BELGIANS. A few choice young stallions from three to five years old, also two and three year old fillies for sale. Los Altos Stock Farm, Los Altos, Cal.

PERCHERONS—Pure-bred, registered, 2-year-old stallions for sale; or will exchange for draft horses or stock cattle. H. T. Lillencrantz, Aptos, Cal.

BIG BONED BREEDING JACKS for sale. Jas. W. McCord, Hanford.

RUBY & BOWERS, Davis, Cal.—Registered draft stallions, all breeds.

DAIRY CATTLE.

RANCHOS DOS RIOS, breeders of registered Jersey cattle. Oldest and largest herd in California; established 1868. A few young bulls from best cows in herd ready for delivery. Address R. E. Watson, R. No. 2, Modesto, Cal.

JOHN LYNCH, breeder of Registered Short-horns, milk strain. High class stock. First-class dairy breeding. Smooth cattle. Best pedigree. P. O. Box 321, Petaluma, Cal.

T. B. PURVINE offers for sale a few nice registered young Jersey bulls and bull calves out of fine cows. Petaluma, Cal. R. F. D. 4, Box 195.

GRADE SHORT-HORN DAIRY COWS FOR SALE, also a few registered Holstein bull calves. Apply A. Balfour, 350 California St., San Francisco.

CARRITHER'S HERD OF REG. JERSEYS headed by Gertie's Lad 70950. Bull calves for sale. Price \$50 to \$150. R. No. 3, Box 105, Tulare, Cal.

H. N. LOCKE CO., Lockeford, Cal.—Choice young Jersey bulls and bull calves from prize winners and producers.

CHAS. N. ODELL, Waukeen herd of registered Jerseys. Correspondence solicited. R. No. 5, Modesto, Cal.

MINOR & THORNTON, Breeders of Reg. Holstein-Friesian cattle. Kearney Park P. O., Cal.

REGISTERED JERSEY CATTLE—Young stock for sale. W. J. Hackett, Breeder, Ceres, Cal.

BEEF CATTLE.

SIMON-NEWMAN CO., Breeders of Registered Herefords. R. M. Dunlap, Manager, Newman, Cal.

SHORT-HORNS—Villager heads the herd. D. R. Hanna, Ravenna, Ohio.

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HEREFORDS—Fairfax Perfection heads herd. J. P. Cudahy, Belton, Mo.

HEREFORDS—Gay Lad 6th heads herd. O. Harris & Sons, Harris, Mo.

SHEEP.

CHAS. KIMBLE, Breeder and Importer of Rambouillets. Hanford, Cal.

MISCELLANEOUS.

JERSEY CATTLE, DUROC JERSEY SWINE. Mossdale Farm. J. E. Thorp, Stockton, Cal.

CHRONIC INDIGESTION.

To the Editor: I have a mare 11 years old. Use her on the Rural Route three times a week, give her plenty of oats, hay, grain and a little alfalfa hay three nights per week and leave salt where she can get at it, but she is falling off and her hair does not lay down properly. She eats well and her system seems to be in good condition. Have had her teeth attended to so she chews her food o.k. I would like to keep her up in good condition. What nourishment does she lack?—Subscriber, San Joaquin county.

ANSWER BY DR. EDWARD J. CREELY.

This condition is caused by the animal not being able to properly masticate the food. I am inclined to advise you to have your dentist examine the mouth

again, or you can carefully examine the feces and see if it shows whole grain, or long pieces of hay. Write again and I will give you a recipe for chronic indigestion.

San Francisco Veterinary College.

KIMBLE'S PURE-BRED HOLSTEINS.

In line with others who are building up their dairy herds, Robert Kimble of Hanford recently brought from the East a fine young yearling bull with which to head his herd. This bull was bought from Quentin McAdam of Utica, N. Y. and should make a fine individual.

Although in the pure-bred business only

two years, Mr. Kimble has some choice individuals, among them being Josie De Kol 4th, and May Butler Gueana. The last named being an A. R. O. cow with a 36 lb. record.

These two cows are fine specimens of careful breeding and out of May Butler Gueana, Mr. Kimble has a fine young heifer sired by Consuels Juliana Lad which is a fine looking youngster. Most of Mr. Kimble's stock was purchased from August Knosbes and from Jones & Son of Wisconsin. The ranch formerly occupied by this herd was sold and a new one bought nearby. Mr. Kimble has put up new buildings and will later on have an equipment to correspond with the class of stock kept.—J. C. L.

320 ACRE DAIRY RANCH

Located on the Merced River close to shipping point. 160 acres level bottom land, practically all in crop. Rich sandy loam soil. Plenty of water for irrigation. 2000 cords standing timber. Entire ranch fenced and cross fenced. Fully equipped for dairying. Live stock, including eleven horses and mules and 100 pure bred swine, goes with place, also all farming implements. An exceptional bargain.

\$52.00 An Acre

G. F. MORRELL, Merced, Cal.

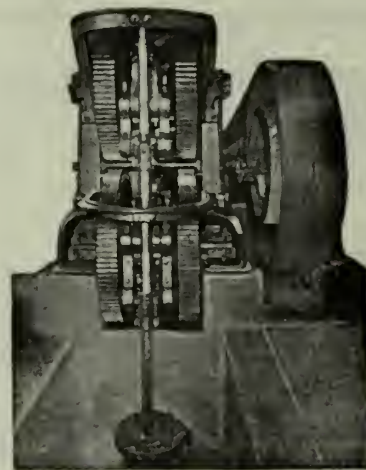
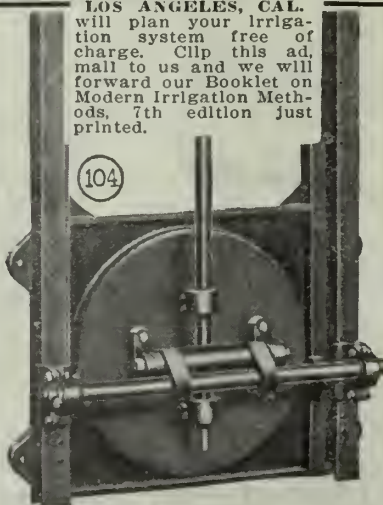
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Are you sending irrigation water through dirt ditches. If so, half of it is seeping down through the sand, and YOUR MONEY IS GOING WITH IT. We are the originators of the scientific irrigation system. Our Gates and Valves are the product of many years' investigation, study and improvement—the best in the world.

Install our economical irrigation system as others are doing—and do it before you lose in the race for dollars through wasteful methods and keen competition. The

KELLAR-THOMASON CO.

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We also make a full line of GATES AND VALVES for cement pipe irrigation. Special Valve booklet "P," giving prices and valuable information on irrigation subjects sent free to interested parties.

Pure Bred Stock From the East

I will leave by May 15th for the East to purchase for California breeders several earloads of pure-bred stock, consisting of Ayrshire, Guernsey, Jersey, Holstein, and Short-horn cattle. Also Shropshire Sheep and Berkshire hogs. Anyone interested in getting pure-bred stock from the East will find it to his advantage to write or call on me before I leave.

W. M. CARRUTHERS

Room 521 Hearst Bldg., San Francisco.

DUROCS IN KINGS COUNTY.

J. Frank Smith & Son's herd of Duroc Jerseys located near Hanford is now one of the leading herds of that breed in the southern end of the San Joaquin valley. The foundation for this herd was brought from the East three years ago and since that time has been built up by the use of two fine individual boars, known as Billy Rosebud Jr. and Nebraska Sensation.

During the year a yearling boar called Colonel Chief was brought from Iowa. This boar is big boned and well put up

and should make a fine showing in the future, his breeding being some of the best in the country. The herd at present contains about 65 head, counting young stock.

To illustrate the prolific qualities of this breed Mr. Smith showed us his two-year-old brood sow, Rose Perfection. This sow has had three litters containing 33 pigs, 30 of which were raised and the last litter now on the ranch is as uniform in bone and size as one could wish for.

Recent sales from this herd are as follows:

One 16 month old boar and two bred

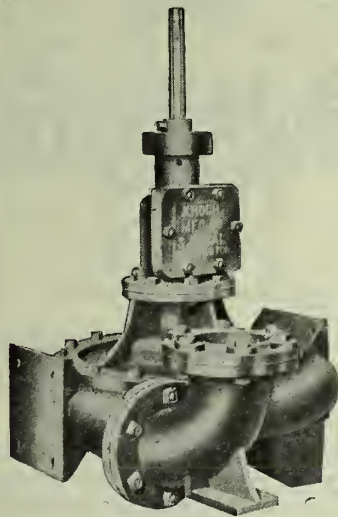
gilts to Linquist Bros. of Turlock; one boar to W. D. Wimmer of Santa Maria; one bred gilt to John Kinhead of Bakersfield; one boar to Floribel Land & Cattle Co. of Hardwick; one bred gilt to Dr. Dixon of Hanford; and other local sales. —J. C. L.

KERMAN CREAMERY PROGRESS.

The Kerman Creamery, located at Kerman, Fresno county has changed management. Mr. Thornton of Minor & Thornton the well known Holstein stock breeders, of Kearney Park now being in charge.

They are at present making 1,000 lbs. of butter a day, an increase almost double of that formerly turned out. A daily test is being given their customers and seems to be very popular. Under the able management of Mr. Thornton, and having as up-to-date a plant as there is in the valley, this creamery will do its share of business from now on.—J. C. L.

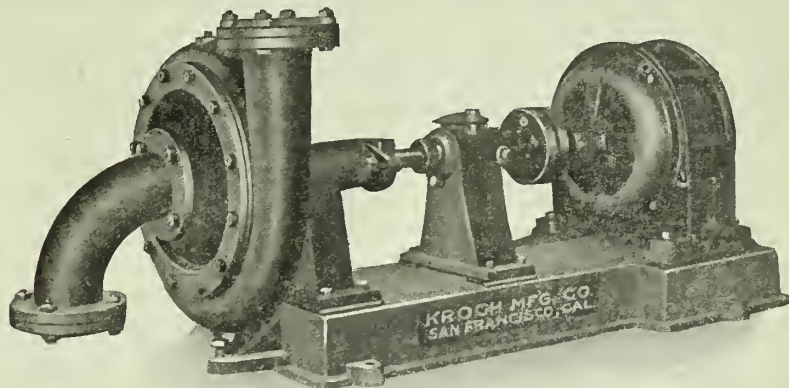
A spineless cactus company was organized at Modesto last week, with a capital stock of \$25,000. The company will raise both the forage and fruit varieties of the Burbank spineless cactus.



Krogh New Vertical Water Balanced Pump

CAREFUL IRRIGATIONISTS ARE INVESTIGATING OUR NEW WATER BALANCED PUMP—THEN BUYING IT.

Experience has taught them that a successful pump must be not only efficient but must also be capable of withstanding, to a reasonable degree, the cutting action of sand. Our pumps excel on this point. Bulletin No. R10 tells all about them.



Krogh Electric Pump

Our branch house, 206 N. Los Angeles Street, Los Angeles, carries a complete stock.

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HOLT CATERPILLAR GAS TRACTORS

IN THE HARVEST FIELD IT IS ONLY IN REMOTE CASES THAT YOU ARE ABLE TO USE A ROUND WHEEL TRACTOR. FOR THEIR SUCCESSFUL OPERATION THE GROUND MUST BE HARD AND LEVEL. THE HOLT CATERPILLAR WORKS IN ANY GROUND: SOFT, SANDY, HILLY OR OTHERWISE.

IT PROVIDES A STEADY, EVEN MOTION ALL DAY LONG, ABSOLUTELY DEPENDABLE AND EFFICIENT. IT ALLOWS YOU TO COVER A GREATER ACREAGE DAILY THAN ANY OTHER TRACTOR CAN POSSIBLY DO.

BUILT IN TWO SIZES---30 AND 60 H. P.

In the rest of your year's work, there is no tractor in the world which will give you as complete satisfaction and save you as much money as the Holt Caterpillar.

It is the railway locomotive applied to agriculture. It runs on its own steel track. It never sinks in the ground, it cannot slip, it climbs hills, runs on muddy roads and it does not pack the soil. All because it lays its own track down, then rolls over it.



Holt Caterpillar and Holt Combined Harvester

Most traction engine manufacturers today are claiming that their tractors are the "best on the market," but they base their claims on some improvement in the motor or transmission.

You have a right to expect that these points in construction will give you satisfaction. It is simply a matter of industry for any manufacturer to secure a good motor, etc.

The traction advantages are now and always has been the important consideration to you.

OUR 1913 MODELS ARE EQUIPPED WITH THE NEW DROP FORGED STEEL TRACK, WITH HIGH, OPEN SIDES, THROUGH WHICH ALL DIRT AND FOREIGN MATTER WHICH MIGHT FALL INTO THE TRACK, IS FORCED OUT.

The Holt Manufacturing Co.

STOCKTON, CALIFORNIA

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Stockton, Cal.

Please send me literature describing the Caterpillar Gas Tractor and showing pictures of the machine in operation.

Name

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From the largest and best pure-bred flock in the world. All turkeys carefully selected, and combine the greatest prize-winners and the best blood of the East and Middle West. They have large bone, long deep bodies, full breasts, brilliant plumage and are healthy. No inbreeding. Write for further information. Geo. A. Smith, Corcoran, Cal.

THE MANOR FARM RHODE ISLAND REDS have won more prizes, cups and specials during this season at the big important shows than all their competitors. They have the typical shape and rich red color. Eggs, chicks and breeding stock all the year round. Exhibition or utility and satisfaction guaranteed. The Manor Farm, Petaluma, Cal.

THE MANOR FARM HATCHING EGGS—Day old chicks and stock from best quality. S. C. White Leghorns, S. C. Black Minorcas, Barred Rocks and Orpingtons. Send for illustrated price list—it's free. The Manor Farm, Petaluma, Cal.

WESTERN HATCHERY—Fred Dye, Proprietor, successor to Dye & Fredericks. Now booking orders for day-old chicks, from heavy-laying strain White Leghorns. Prices on application. Box 2, Petaluma, Cal.

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25-lb. Galvanized Pails, \$2.00.
5½-lb. can, 50c.
2½-lb. can, 25c.

BROWN LEGHORN ROOSTERS, chix and eggs, same in Barred Rocks, White Minorcas. W. S. Rose, Yuba City, Cal.

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FOR SELECTED EGGS AND CHICKS from S. C. White Leghorns, see Hopland Stock Farm advertisement.

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BUFF ORPINGTON AND COLUMBIAN WYANDOTTE; eggs and stock. Mrs. Leona Brophy, 1415 N. St., Fresno.

BARRED ROCKS ONLY—Now is the time to order your eggs and hatched chicks. Send for price list. G. L. Hawley, Madera, Cal.

BARRED PLYMOUTH ROCKS, White Minorcas, White Holland turkeys. Stock and eggs only. L. N. Cobbledick, Oakland.

CHICKENS, DUCKS, GEESE, GUINEAS, Pea fowl. Address Wm. A. French, 545 W. Park St., Stockton, Cal.

TRAPNESTED S. C. WHITE LEGHORNS. Eggs, chicks, stock. A. R. Schroeder, Box P. San Gregorio, Cal.

WHITE LEGHORNS—Chicks, eggs, cockerels. Fine stock. Reasonable. O. B. Morris, Lodi, Cal.

CROLEY'S DRY MIXED INFANT CHICK FEED—The first feed for your baby chicks.

BRONZE Turkeys and Eggs. Ed Hart, Clement, Cal. Large size, good plumage, early maturity.

TWIN OAKS FARM—W. H. Blissell, Proprietor, Livermore, Cal.—Buff, White Orpington.

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BARRED and BUFF
PLYMOUTH ROCKS.

A few choice cockerels and pullets left. Eggs for hatching after January 1st.

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S. C. WHITE LEGHORN BABY CHICKS, \$9.00 per 100, \$85.00 per 1000.

S. C. WHITE LEGHORN HATCH-EGGS, \$1.00 per 15, \$5.00 per 100.

My stock is thoroughbred and carefully selected for Standard and laying qualities.

J. R. HEINRICH POULTRY YARDS,
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Free Book

giving a full account of hatching, raising, and caring for chickens, with details of a Complete System of Feeding.

Will be sent to you on application

COULSON CO.
Box E, Petaluma, Cal.

SEASONABLE NOTES FOR THE
POULTRY YARDS.

[Written for the PACIFIC RURAL PRESS by
SUSAN SWAYSGOOD.]

It seems to me that the above heading is laughing at me and saying "ha-ha, seasonable eh, if this is seasonable, any old thing will go for being seasonable."

But then aside from the weather conditions we go by dates and call things seasonable more by the month and date than by consulting the weather. So I beat on that score anyway, but my! it is surely unseasonable weather, and one hardly knows what to say that will be best for the month. One thing is sure, those that deferred hatching until late are just about right for May, when if we are going to have summer it will be on hand for the May chicks. Early chicks have needed a lot of care and those that did not get it did not grow very much.

MOTHERLESS CHICKS.—Yesterday I was out gathering up the poor little motherless chicks of several hens that had tired of their families and left them to the mercy of the weather. I put two lots together and with two laths and a gunny sack made a temporary hover for the little ones; put some fine hay in for a bed and they do not miss the warm mother quite so bad. Surely these cold nights the deserted chicks will miss a good warm feather bed if nothing is done for them. But the cool weather has its good side too, for the hens still keep laying as if all others things rested on their doing so. Then again, those who delayed hatching until late are all right, for the chicks will come out just right to save extra trouble, weather conditions will be more settled and the chicks will be raised much easier than those that were hatched earlier.

GREEN FEED.—This is a good time to make late plantings of lettuce, rape or any other green feed, that will come in when the first planted is getting tough and going to seed. Plenty of green feed makes light feed bills at the store and leaves that much more profit. It is strange what a big difference there is in the cost of raising a bunch of chicks where all the feed must be bought and fed; and where chicks run out on a patch of alfalfa, lettuce, or other green feed; the fact is you can hardly get them to eat any grain feed at all. I make a rule of shutting mine in at night so that I can feed them before they go on range, but when they can get out they do so, and they don't give a rap for feed.

The man with a little land can usually have something green on hand, but not all can turn the chicks out. When they must be confined it is a great saving of feed to either eat the green fodder or have some contrivance to feed it in, so that it is kept clean.

This is a good time to plant a few mangels or beets; the golden tankard or gate post are as good as any, and they come in for fall and winter feeding when other green feed is scarce. If we try, we can most always have something ahead for the flock that will help out the feed bill. It is not only a question of saving the feed bill, but of keeping the poultry active and healthy; for unless they are kept active, disease creeps in and bad habits. Feather eating is usually the result of idleness, too much standing around with nothing to do, a few mangels give work for hours and keep the hens happy. All these little things must be thought of in time, because the farmer is no kind of a hand to work magic. Getting green feed has to run through the natural course, no rubbing of Alladin's lamp, but, honest to goodness, sowing the seed and cultivating the ground.

KILL THE VERMIN.—Another thing to

look after about this time is the insects. Look out for the chicks running with hens, for unless you do there will be trouble in store. In the evening when all is quiet is a good time to look after this chore. Take a good dust can with buhach powder and quietly grab the hen, dust her thoroughly rubbing in the feathers, not forgetting to put some powder over the tail and along the back, then put her back and the chicks going under her for the night get the full benefit of the powder at a small amount of labor. I used to dust each chick individually, but recently tried this way and find it works just as well and you don't have to annoy the chicks. If we never break away from the old ways of doing things we never learn how to make work lighter, so I am always trying some new scheme. Some are no good at all and I let them go, then again some are a little improvement on the old and I use them and tell others.

For incubator chicks we have to work some other scheme, and the best way I have found is to make a long feed box in the shape of a V, the end pieces being about 1½ inches higher than the feed trough. Now on these two upright ends nail a lath or thin stiek, that has been wrapped with a woolen cloth soaked in coal oil. When the cloth dries out wet it again, then when the chicks put their heads under to feed they come in contact with the oiled rag. At first they get

but a touch of it, but constant eating eventually gets the chicks oiled enough so that head lice give them a wide berth. The air takes away most of the sting that might hurt the chick. If preferred

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HIGH
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Ask our dealer, or
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PREMIER POULTRY FOODS "Good as the best
Cheaper than the rest."

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POULTRY FOUNT

It saves expense and
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WHITE LEGHORNS

Selected and mated to imported stock cockerels.

BABY CHICKS at \$12 per hundred. May and June deliveries \$10 per hundred.

EGGS \$6 per hundred in lots of less than 1000 eggs. Orders in excess of this, 10c per dozen above highest market price one week before shipment. 75% fertility guaranteed.

TO make room for young stock we offer 4000 two-year-old hens in full laying for \$15 to \$18 per dozen. 1000 one-year-old hens for \$18 to \$24 per dozen.

8000 hens yarded—sanitary conditions perfect.

WELL RAISED—WELL CULLED—EGGS WILL PRODUCE LAYERS.

Pullets in full laying from \$12 to \$15 per dozen.

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CHICKS -:- EGGS

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Our quality of stock and low prices combined are sure to be of vital interest to you.

Write today for our descriptive pamphlet; it's free.

Must Hatch Incubator Company

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(Incorporated)

PETALUMA, CALIFORNIA

a little grease could be mixed with a small amount of coal oil, which would

BROODY HENS.—The cool weather has its advantages as well as its disadvantages; among the former, hens of the large breeds have kept right on laying and forgotten to get broody as much as usual. Broody hens are quite a bother unless one has a cooler made for the purpose, and as they can be made at such a small cost of material and labor, everybody ought to have one. But I am among those that have not got around to one yet, so I change the hens from their own yard to one that is new to them and where there are no nests in the house. As they can see the yard they belong to, and the other hens, they keep pretty busy looking for a place to get through. About three days breaks them up, and then they find plenty to eat and drink and are soon back among the layers. It is not necessary to abuse hens, broodiness is a natural quality of certain breeds and if we take it in time the hen can be diverted from her purpose.

Some writers say hens get broody when they have accumulated sufficient internal fat. That is all nonsense; some hens do not attempt to set until they are so poor that it would be a hard task to find a bit of fat, either internal or external. We might as well say people that get fat internally have fevers; sitting is more of the nature of a fever than anything else,

and it makes no difference whether the patient is fat or lean.

The trouble lies in the hen's natural instincts. When nature calls, the hens blood responds to it and gets to fever heat so that it can fulfil the law of its nature. What is the use of beating around the bush to find excuses for a natural instinct. In some of the small breeds the instinct has been bred out, or partially so, and by persevering we can breed it out of the heavy breeds, to a certain extent.

SITTING A REST.—Whether it would be desirable to do so is the question. For my part, I believe it would be a mistake. When a hen sits three weeks, although she does not eat or drink very much, the whole system is resting up, at first there is a relaxation of the muscles, the comb darkens and the hen appears to be losing strength. That is because of the change going on in the system, but notice how soon she brightens up and how firm the muscles get after this three weeks probation. A hen that is taken reasonable care of during these three weeks of rest, will be better prepared to keep up her end in an egg laying contest than one that keeps on laying without a rest; besides, such hens continue to be profitable much longer than the allotted term. If I were in a position to take care of the chicks I would not bother breaking hens up, but let everyone sit once during the season. Anyway I always aim to let my prize hens sit towards the close of the season and raise their family as a reward for their faithfulness, and the longer they stay with the chicks the better they please me.

But there is one way to stave off broodiness, or rather two ways, one is by being careful in the feed, never giving any corn, corn meal, or in fact any of the changing the hens every few days from

corn products, and by letting the feed be just wheat, fed in deep litter so that they must work to get it, and by feeding a great portion of the rations in the form of green stuff. The next method is by

one yard to another, so that things look unfamiliar to them. This is more trouble and is not nearly as good for the hen, but is just as effective, as hens don't get broody unless things are to their liking.

BABY CHICKS

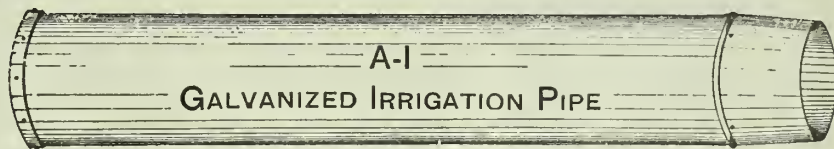
Hicks' Jubilee Hatchery is now booking orders for Chicks. We guarantee satisfaction.

Buy from the one that does his OWN HATCHING.

W. Leghorns, B. Rocks, Buff Orp., Blk. Minorcas, R. I. Reds.

Send for Circular.

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A-1 Pipe was awarded first prize at Fresno and Santa Clara County Fairs in 1912.

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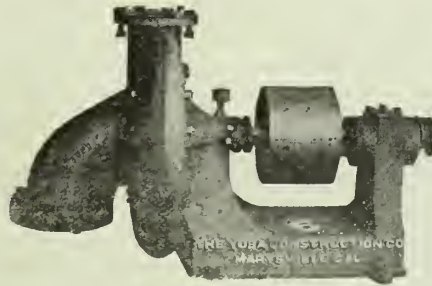
Special features to reduce operating costs worked out in the field.

DURABILITY, EFFICIENCY, ECONOMY. Write us for particulars and prices.

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THE THOMAS HATCHERY

Petaluma

FOR CHICKS

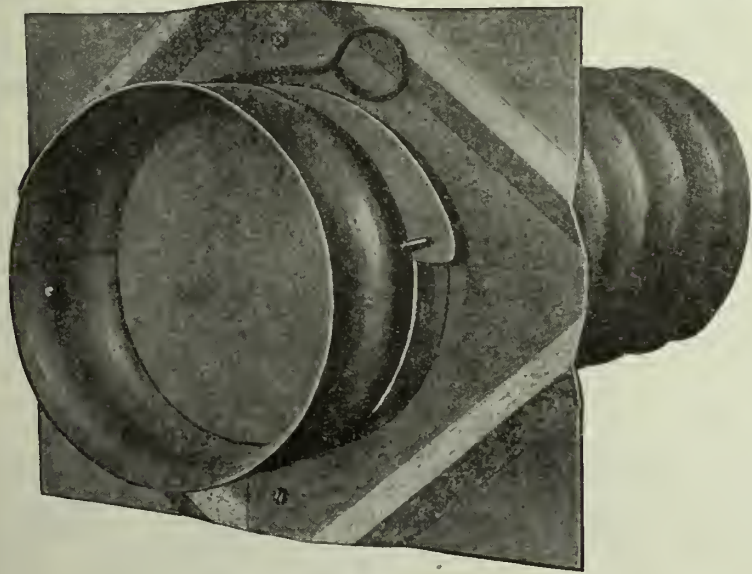
Which are **Cheaper** and **Better** than all the rest, because we have **Better Stock** and **Better Equipment** and because we do give you **Better Service**.

Write for price list and pamphlet, mailed upon request, without cost.

Single Comb White Leghorns a specialty.

CARL D. THOMAS, Proprietor.

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SIMPLEX CIRCULAR TROUGHS (To be set in concrete base)

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Here's The Gate You've Been Wishing For

4-C IRRIGATION GATE

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Made in 8", 10", 12", and 15" Diameters.

For the Small Laterals from the Main Ditch.

By far the easiest to install or remove,—adaptable to any number of places.

Does away with all trouble from washing out.

So light and simple of operation as to cut in half the labor of irrigating.

And **LASTING**, because made from AMERICAN INGOT IRON, the purest, most even and most durable iron on the market, and having the further protection of a heavy coat of galvanizing.

Other types for larger diameters and heavy pressures.





**Use a
MOTOR-DRIVEN
PUMP**

Electricity is clean, quick and reliable. There's no trouble or worry connected with it and it is always ready when you want it. The

**American
Centrifugal Pumps
With Motor Base**

are specially built for high speed work. They are all equipped with patent ball bearings.

A modern up-to-date pump using modern up-to-date power.

**OUR ADVISORY SERVICE BUREAU
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will give you advice as to the best pumping outfit For You.

What is your Irrigation Problem?

Write for Interesting Catalogue

**The California Hydraulic
Engineering & Supply Co.,
68 Fremont Street, San Francisco**

NEW TOWNSITE OF WALNUT CREEK.

Would you like to own a country home that is really suburban in its nearness to the city? A home that is in a true country environment and but a short ride from town by electric railway?

The NEW TOWNSITE OF WALNUT CREEK is completely equipped with all the city conveniences such as graveled street, curbs, cement walks, water, electricity, sewers and parkings which are set out to flowers, shrubs, and trees—everything that one could ask.

The NEW TOWNSITE OF WALNUT CREEK adjoins the thriving little town whose name it bears. The Oakland & Antioch Electric Railway passes through the tract. Six trains each way daily to San Francisco and Oakland put you in close touch with the bay cities. The running time to Oakland is about 40 minutes and to San Francisco a trifle over an hour.

The NEW TOWNSITE OF WALNUT CREEK is located on beautiful rolling land overlooking all the surrounding country. The view extends over the San Ramon, Ignacia, and Clayton Valleys. You can see from Danville on the south to Suisun Bay on the north. Majestic Mt. Diablo is in full view and can be seen from its foothills to the peak.

The NEW TOWNSITE OF WALNUT CREEK offers lots from \$500 up. All lots are large, being from four to five times the area of the ordinary city lot. The terms are exceptionally liberal. For instance, you can purchase a \$500 lot on payment of only \$7.07 cash and \$7.07 monthly thereafter. Immediate possession is given to purchaser.

LIVE IN THE BEAUTIFUL MOUNT DIABLO COUNTRY. Cut down the high cost of living. You can live here in the most beautiful environment and raise chickens, berries, fruits, nuts and vegetables. You do not have to give up your position in the city, as you can commute daily. Investigate the new Townsite of Walnut Creek Sunday.

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734 Market St., San Francisco.

Branch offices, 1538 Broadway, Oakland,
Walnut Creek, Concord.

SOMETHING ABOUT MOTOR-DRIVEN PLANTS FOR IRRIGATION USE.

[Written for the PACIFIC RURAL PRESS by
WM. H. KRITZER.]

The use of electricity in pumping is justified wherever that use makes for a betterment of economy or efficiency in operation. At its water end an electric pump is essentially the same as a steam or air pump, the difference lies in the substitution of an electric motor for the steam or air power and the arrangement of the connection between the motor and the pump plunger or impeller by use of gearing, chain drive, flexible coupling or direct connection. The important advantages which pumps offer for irrigation are: Higher mechanical efficiencies, greater economies in operation and maintenance, greater flexibility in moving from one well to another after the power circuits are in, and saving in machinery space required.

Wherever there is an electric current available at a moderate price an electric pump of good design and properly installed will give an efficiency of 20 to 80%, depending on its size and conditions of operation. Then the power loss in the transmission lines is less than in any other system, is directly proportional to the quantity of water pumped and is entirely absent when the pump is not in operation, so practically no electric energy is consumed, and when the pump is working, energy is supplied in proportion to the amount of work done. As for the other advantages, they are self-evident without further comment.

Types.—Electric power can be conveniently applied to four types of pumps suitable for irrigation work: Low and high lift centrifugal pumps of the horizontal type; deep well turbine centrifugal pumps; low or high lift triplex pumps; and special pumps of the positive valve type.

Any of the above type of pumps can be operated either by alternating or direct current motors. When the alternating current system is to be used, the constant speed induction motor is admirably adapted for most of the pumping plants. When the direct current system is selected the driving motor for the pump should preferably be compound wound to prevent racing of the motor when the pump loses its water. Shunt wound motors, if of sufficient power, also give good satisfaction under certain conditions.

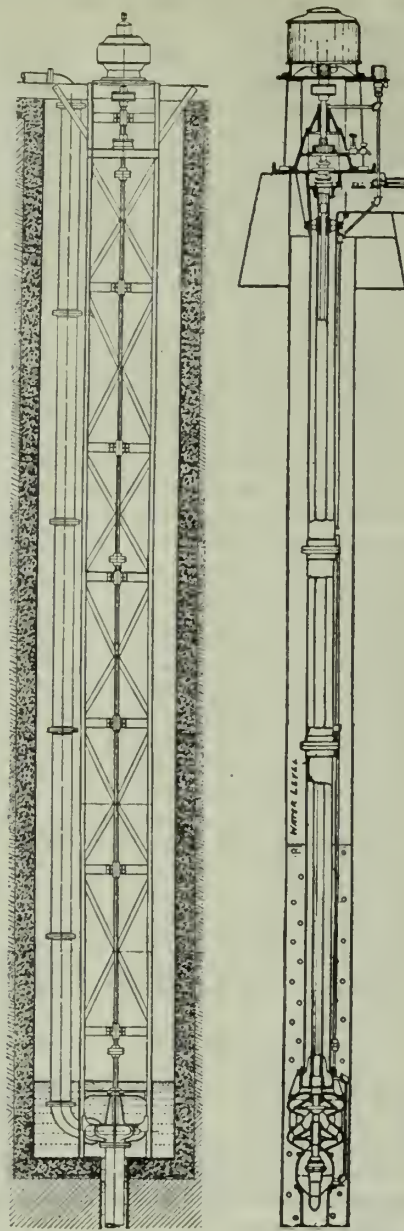
Under conditions where economy of space is not essential, motors may be belt-connected to pumps, but they are usually mounted on an extension of the pump base, making a self-contained and compact unit.

The electrically driven centrifugal pump is rapidly coming to be the most widely used form in irrigation service. As compared with other types, its salient advantages are greater commercial efficiency and less first cost, with less weight of material, smaller volume of space occupied, and less ground space. In general, this pump is best adapted for conditions where the height of lift is moderate and large volumes of water are to be moved, and where the water to be pumped is gritty or muddy.

Efficiencies of from 25 to 80% or more are obtainable with these pumps, but they are not always possible, as they are limited more by the ability of the impeller to resist the stresses due to centrifugal force than by the height to which the water is to be lifted.

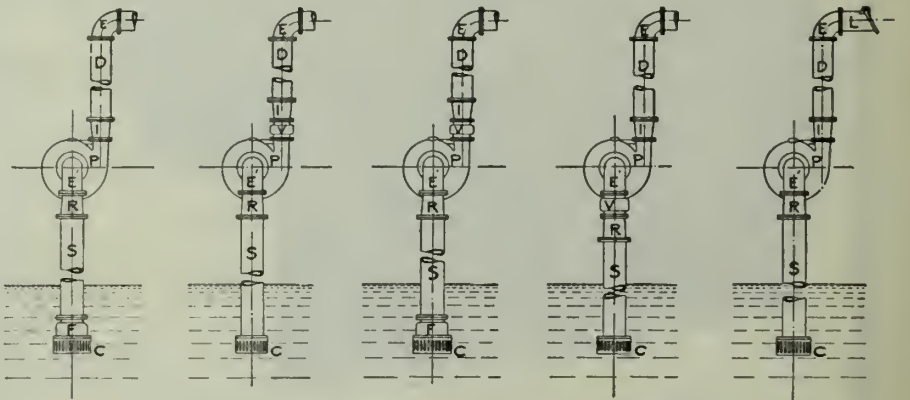
EXCESS POWER NEEDED.—The power unit

Blake, Moffitt & Towne
Dealers in 37 FIRST STREET, SAN FRANCISCO
Blake, Moffitt & Towne, Los Angeles
Blake, McFall & Co., Portland, Ore.

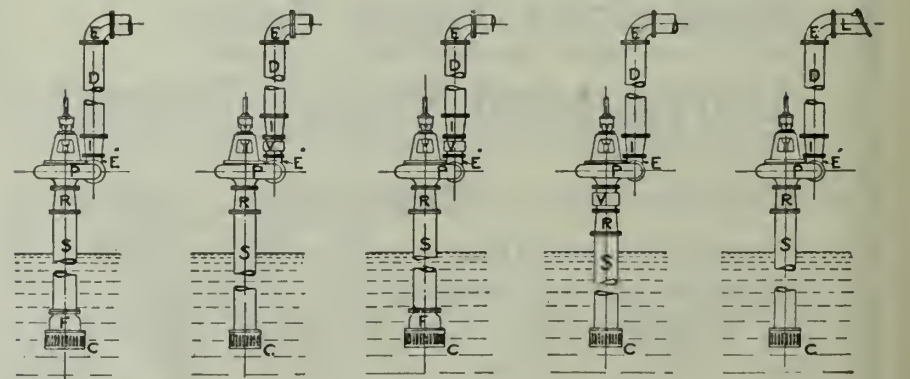


VERTICAL CENTRIFUGAL
PUMP DIRECT CON-
NECTED TO VERTICAL
ELECTRIC MOTOR.

DEEP WELL CEN-
TRIFUGAL TUR-
BINE DIRECT
CONNECTED TO
VERTICAL ELEC-
TRIC MOTOR.



HORIZONTAL CENTRIFUGAL PUMP INSTALLATION.



VERTICAL CENTRIFUGAL PUMP INSTALLATION.

C = Open strainer. D = Discharge pipe. E = Pipe elbow. E' = Suction elbow. E'' = Discharge elbow. F = Foot valve. I = Straight increaser. L = Flap valve. P = Centrifugal pump. R = Straight reducer. S = Suction pipe. V = Check valve.

should always be in excess of the actual power required to work the pump, for the reason that friction is the greatest just before the pump is placed in motion. Then again, pumps must not be located at points where the inlet pipes get partly choked up with sand and silt, which demands much more work from the driving motor to effect its removal.

It is advisable to use a motor with at least 40 to 50% excess power, as it will not be a disadvantage in the subsequent operation of the motor, since the larger the motor the higher will be its efficiency. Moreover, since motors only consume current in proportion to the work demanded of them, there will be no material increase in the cost of maintenance of such a motor, even though it is operated considerably under load. The friction losses in wear of gearing, pump valves, etc., necessitates the selection of a motor with a good margin of capacity in excess of that actually required to operate the pump.

The buying of a pump is a matter that the average purchaser does not give the thought and consideration it warrants. He is usually so intent on getting a pump at the lowest possible price that he overlooks entirely the work that it is to accomplish, and discovers when it is too late that it is not of sufficient size for the purpose intended. No harm will result if the motor selected to operate a pump is at least 10% oversize, but never under any circumstances should a motor be purchased too small for the work it is expected to do. To get the power required to lift any amount of water we must know the weight of the water to be lifted, the height it is to be lifted, and the time required to raise it.

When the suction lift is less than 25 feet, a horizontal centrifugal pump, as a rule, should be preferred. For lifts greater than 25 feet and not exceeding 150 feet, the vertical type of centrifugal pump or a cylinder pump has been generally used, but now as the deep-well turbine pumps are coming into favor, they are rapidly displacing the former where a higher efficiency is to be taken into consideration in preference to a lower first cost.

AGRICULTURAL REVIEW.

Crop Prospects.

The following is an estimate of the fruit crop of the Santa Clara valley, made by a gentleman skilled in the work of sizing up growing crops. As the man has no axe to grind, we take it for granted that his figures will be found to be approximately correct. His estimates on apricots is that this fruit will make 50% of a full crop, that Moorpark will be light, Blenheims heavy and Hemskirks

fair. Cherries will be a fair crop. Regarding prunes, he says it is too early even to guess. At this time the prospects are for better than 50% of a normal yield, as the fruit has set better than anticipated. However, the lack of rain will enter into the question very materially before the crop is matured. Already there has been quite a heavy drop occasioned by the few warm days. In some localities in the valley he anticipates that many trees will die from lack of moisture.

In Santa Cruz county, the Watsonville Pajaronian states that a bumper apricot crop is in prospect. Apples and cherries also promise well. That journal also states that apricot pits have recently sold at Hollister for \$32.50 per ton, being a raise of \$12.50 over the price a year ago.

The grain and hay crop of Butte county are reported in excellent shape, and promise above the normal yields. On the west side of the Sacramento valley, however, the prospects for hay and grain are below normal.

The growing crop of sugar beets around Visalia and Tulare is reported to be in fine shape. The sugar factory at Visalia has had some improvements made and is now ready for the fall campaign.

Grain hay will in all probability be very short in California this year. One San Francisco buyer states that hay will have to come from outside the State to help supply the larger markets. The price of home-grown hay will be determined by the cost of bringing it in from the outside. Alfalfa hay will doubtless be as large a crop as usual.

Fruit Items.

Orange groves continue to sell at good prices around Riverside. An exchange from that town tells of four deals made last week in which orange groves sold at \$1200 to \$1500 per acre.

At Clovis last week there was organized the Grape and Green Fruit Shippers' Association, with about thirty-five members. The object of the new organization is to put the shipping of ripe peaches and grapes to market on a sound basis, giving the shipper a cash or guaranteed price at this end, and the Eastern buyer a sound, ripe, salable fruit at his end. S. T. Brown was elected president and A. F. Norrish secretary.

A good crop of table and wine grapes is expected this season in the large vineyards of the west side of San Bernardino county.

Neil Duncan of Redlands has recently acquired 128 acres of the Highland House ranch near Beaumont. The part of the ranch secured by Mr. Duncan contains all of the famous fruit orchards and home buildings and is a fine income property.

The new dried fruit association which is trying to get into the business of handling peaches, particularly in the San Joaquin valley, signed up a thousand acres of peaches in the McKinley district, near Fresno, last week.

Nurserymen in the Porterville section are shipping nearly 20,000 citrus trees to planters daily. Many of the trees are going to the southern counties, as most of the nursery stock there was destroyed during the January freeze.

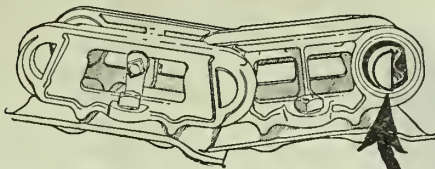
Cut worms are reported doing considerable damage to the vineyards in Stanislaus county.

Live Stock and Dairy.

A shipment of 522 head of steers was made from San Benito county to Colusa county last week. The steers were taken to the Moulton irrigated farms to be fed till fat, as feed is much better in that locality.

H. A. Doty sold his 40-acre dairy ranch

Power Revolution

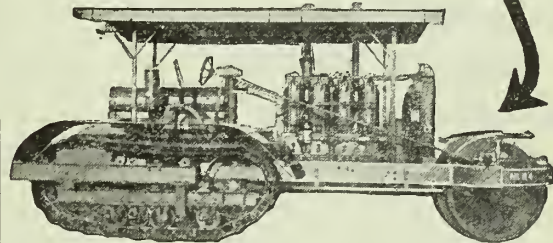


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WITH ITS Frictionless Self-Laying Track

Specifically: the introduction of the Frictionless Self-Laying Track, by increasing the surface area, absolutely eliminates any danger of soil packing and enables the tractor to travel on any ground. The utilization of the rocker joint and extremely long bearings eliminates grind and wear, making the tractor the most economical on the market. The low construction makes orchard cultivating practical—and our All Steel Parts secure unlimited durability. These are only a few of the many innovations of which this new tractor boasts.

The C. L. Best 70 H. P. Gas Tractor presents the only All Steel Tractor with Rocker Joints Oscillating Trucks Tremendous wide Face Enclosed Gearing Extremely Long Bearings



Do they meet the needs of your farm? If so, write for our Illustrated Catalogue. C. L. BEST GAS TRACTION CO., Sta. G, Oakland, Cal.

Today specialization is the keynote of modern progress.

Today no one design of tractor could or does embody all desirable features or fit every condition.

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The oldest and best stocked nursery in West wants more local salesmen. Our terms are the most liberal offered. Good openings for both experienced and inexperienced men. Connect where best price is paid for your services. Better write at once.

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SAN FRANCISCO SULPHUR COMPANY Importers and Refiners of

"Anchor" Brand, Velvet Flowers of Sulphur; "Volcano" Brand, Sublimed Flowers of Sulphur; "Tiger" Brand, Sublimed Sulphur; "Diamond S" Brand, Refined Flour Sulphur; "Fruit" Brand, Powdered Sulphur; Roll or Stick, Refined Lump.

AGENTS FOR "Fleur de Soufre" Extra Fine and Eagle Brand Fiori di Zolfo (for bleaching and spraying).

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Office: 624 California St., above Kearney, SAN FRANCISCO, CALIFORNIA. Samples and Prices on Application. Telephone: Kearney 4836.

near Modesto last week to Messrs. Gafney and Cullen, of Bodega bay. The ranch will be stocked with pure-bred Jerseys.

It is stated that about 700 carloads of beef cattle will be shipped out of Lassen county this season.

The Cottonwood, Shasta county, creamery company was incorporated last week with a capital stock of \$40,000. A creamery is to be built at that place and agencies and depots established in other parts of the county.

The large Maillard stock ranch of Maria county was sold last week to San Francisco parties and will be subdivided into small farms and summer camp sites. The ranch contains 6,000 acres and the price paid is reported to be \$300,000.

James W. McCord, of Hanford, has just purchased an imported Shire stallion which he will breed to his fine Shire mares. Mr. McCord has now one of the fine stock and alfalfa ranches of the State.

A meeting of foresters of the Sierra foothills was held at Fresno this week to perfect plans to allow of all the cattle and sheep possible grazing on the Gov-

ernment reserves. It is stated that 27,000 head of stock can be carried through the summer on these lands.

At an auction held by I. Vieth near Pixley, Tulare county, last week, 50 head of cows sold for an average of \$75 per head.

Two carloads of dairy cows were shipped from Kings county last week and sold to Patterson colonists.

Mrs. M. C. Vincent received at her ranch near Gridley, last week, 125 head of dairy cows and heifers. The land where the cows are to be kept is partly seeded to alfalfa and a model dairy is to be installed.



Circular containing 100 mechanical movements mailed free.

AGENTS—\$173 IN TWO WEEKS, MADE by Mr. Williams, Illinois, selling the Automatic Jack, Combination 12 tools in one. Used by auto owners, teamsters, liveries, factories, mills, miners, farmers, etc. Easy sales, big profit. Exclusive county rights if you write QUICK. Automatic Jack Company, Box O, Bloomfield, Indiana.

THE STEPHENSON PATENT COOLER.

NO ICE REQUIRED
Perfect ventilation.
Absolutely sanitary.



Awarded first prize wherever exhibited. If not for sale at your dealer's, write for particulars and prices.

L. ANDERSON CO., Mfrs.
MARTINEZ, CAL.

The Home Circle.

Our Garden—Before and After.

There is something in the air of spring which creates and increases optimism, and that intangible something is most ably assisted by the thrillingly interesting and amazingly pictorial literature sent out by seed houses at this time.

Even the most hardened of us are unable to resist the temptation to buy at least a few packages of seed and acquire at least a minimum of blistered hands and aching backs preparing the soil therefor.

Since coming to California it has been a Chinese puzzle to me when to plant things. I have planted early and late and could see only small difference in the kind of failure.

Inquiries of my neighbor elicit something like this: "Well, if you get the seed in too early they won't do any good, and then, again, if they are too late they don't grow." Very instructive, and the last three words very truthful.

Last year when we felt that we just must plant things, we got all the old tin cans we could find, melted off tops and bottoms, set them on boards and filled them with rich well sifted earth, and planted beans, cucumbers, melons, etc. Also transplanted from the hot-bed tomato, pepper and egg-plant. Some of these were well grown before being set in the ground and the cans were left around them until well established, to guard against cut-worms. Theoretically, berry baskets would be better, but, actually, we found that fewer seeds germinated in these than in the cans, and more plants died, while they were no protection in the ground against cut-worms.

This year we have shelves set in a protected place with burlap curtains to cover them at night and have great numbers of small plants from the hot-bed, growing strong and stocky, in the larger space than could be afforded by the hot-bed.

The seeds purchased by us have proven an endless surprise, and not always a pleasure. Last year, with visions of unlimited green pepper salads, pickles and plenty of canned ones for winter use, we set out nearly two hundred plants and reaped a bountiful harvest of the hottest kind of hot peppers. A package of the beautiful Celestial peppers were planted to provide beauty in the garden and pepper-sauce in bottles, and grew luxuriantly, but the only Celestial peppers in the lot were six plants given to a neighbor, the rest were everything.

The senior member of the household got a quantity of Lazy Wife bean seed in memory of "how they grew at home," and about 30% germinated and yielded five distinct types of things in pods.

A packet of a certain much praised muskmelon gave us four distinct varieties, besides some vines which failed to produce anything but leaves—and spiteful remarks.

An ounce of carrot seed produced more kinds, colors, shapes and qualities of carrots than any of us knew existed.

One paper of choice watermelon seeds failed to send up one sprout. A paper of another much vaunted variety gave us a generous amount of showy melons, about as sweet, luscious, and attractive as a cow pumpkin, but we saved a lot of the seeds and shall grow watermelons for the cows this year.

We saved seeds of those fruits and vegetables which pleased us most and did it in a systematic way, which, pursued year by year cannot fail to be satisfactory. Melon seeds, for instance, were carefully washed and poured into a corn-popper until fully dried, then put away in the strong envelopes with the patent

To New York By the Rail and Ocean Route

ANOTHER WAY TO GO

The Rail Trip to New Orleans—

SUNSET EXPRESS—From San Francisco Third St. Station, 4 P. M. daily, via Coast Line, through southern California, Arizona, Texas and Louisiana to New Orleans. Electric lighted. Observation—Library—Clubroom—Car. Pullman sleepers, Reclining Chair Cars, Dining Car. All classes of tickets honored.

The Ocean Trip to New York—

Five delightful days, New Orleans to New York, on Gulf and Ocean, by Southern Pacific's commodious 10,600-ton steamers. Excellent service throughout. Promenade decks, State-rooms single or en suite, with parlor and bath.

Rates same as All-Rail, but include Berth and Meals on Steamer.

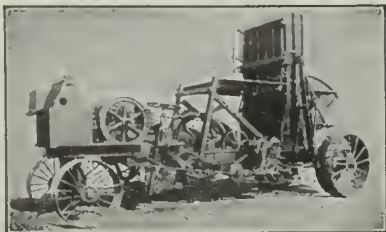
1st Class One Way	2nd Class One Way
\$77.75	\$65.75

1st Class
Round Trip
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Operated either by horse power or
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Write for Catalogue.

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Send 25c and get "The Farmer Boy" 6 months. The only paper in the world published just for you. Send today to E. E. Barley, Editor, Exeter, Cal.

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Save 25c to 75c per lb.

English Breakfast or Black Teas.

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The choicest tea the world produces.

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Compare this with what you've been buying.

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A pure, high grade, uncolored Japan tea.

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Our absolutely air tight tins
retain the fragrance.

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You'll never tire of Ghirardelli's Ground Chocolate no matter how often you serve it. Always the same, year in and year out, it is the one beverage that pleases the entire family. And it is

Very Healthful

being highly nutritious. It is good for the young and grown-ups alike and is very strengthening. Next time you order from your grocer see that

Ghirardelli's Ground Chocolate

is on the list. Once you try it you'll say it is the best tasting beverage you ever drank. Ghirardelli's is the one and only original ground chocolate. It has been the Western home drink for over half a century.

Thirty cups in every pound can.

Buy it by the three pound can—it costs less that way.

D. GHIRARDELLI CO.
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In order that you may try the deliciousness of Ghirardelli's Ground Chocolate we will send you a trial can free upon request.

WATER PIPE

Hot asphaltum dipped, new threads and couplings; 2nd hand in name only. Prices far below your expectations. Screw casing and standard pipe fittings and valves.

THE EXCLUSIVE PIPE HOUSE.

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Machines. Will tell you all in catalog. Write for it.
Kind of formation. Avoid delay from sending back
Leak. Buy from us. We build these up-to-date
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Extra large top sleeve.
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and driving casing in
Has a record of drilling 10
On Men Can Handle
DRILLING MACHINES
IMPROVED STANDARD
Make Big Money Drilling Wells

fasteners, such as mail-order houses use for small parcels. Each envelope was plainly marked, e. g.: "Large Ribbed Muskmelon, 16 pounds, August 5," "27-Pound Watermelon from Toni, August 30"—and these packages were put away in boxes made from oil cans, with wooden frames at the top and close-fitting board covers, to guard against mice.

Do not be misled by the uninformed or otherwise interested who tell you "nitrate of soda will stimulate the crop one year and kill the soil thereafter." Those plants which are now growing on the spots well nitrated last year are noticeably stronger and richer in color than those less fortunately situated, and we found last year that nitrated soil held moisture longer than that untreated. And the real excellence of lettuce is unknown to one who has never eaten that grown with a generous amount of nitrate. We used a heaping tablespoonful to a three-gallon sprinkling pot of water, once a week.

A-1 Grade Second-Hand

PIPE AND SCREW CASING

Best Quality. Fully Guaranteed. Get our prices before buying. They will interest you.

GEO. P. ALEXANDER & CO.,

320 Market St., San Francisco.

Formerly conducting business under name of Alexander Pipe Co.

Wells Fargo Nevada National Bank

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2 Montgomery Street,

Northeast Corner Market Street.

Capital Paid up - \$6,000,000.00

Surplus and Undivided Profits \$5,000,000.00

Total \$11,000,000.00

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Special Attention to Out of Town Accounts
SAFE DEPOSIT VAULTS

Tomatoes are not made any earlier by its use, but quantity and quality are both benefitted.

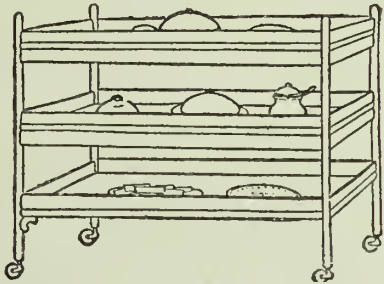
It will be found a great saving to plants, feelings and cuss-words to have two gardens instead of one. In one plant perennial things, asparagus, artichokes, parsley, etc., and those things which should go in the ground very early—before the regular plowing and planting. This, of course, necessitates spading, but it will pay in the end.

Another point on which opinions may differ—we want the garden as close to the house as possible. A woman told me, not long ago, that she had her garden a half mile from the house, "because if it's handy, you use so much more out of the garden than is necessary."

Maybe so, but despite failures and plenty of them, we like to see how our efforts are succeeding—or failing—to watch for the visiting cow, and to run out when a meal is almost ready and get a salad which we have just happened to think that we want.—Josephine D. Lullo.

A Dinner Wagon.

The Utah Agricultural College Experiment Station has issued a very useful circular on "Labor Saving Devices for the Farm Home," by Leah D. Widdsoe.

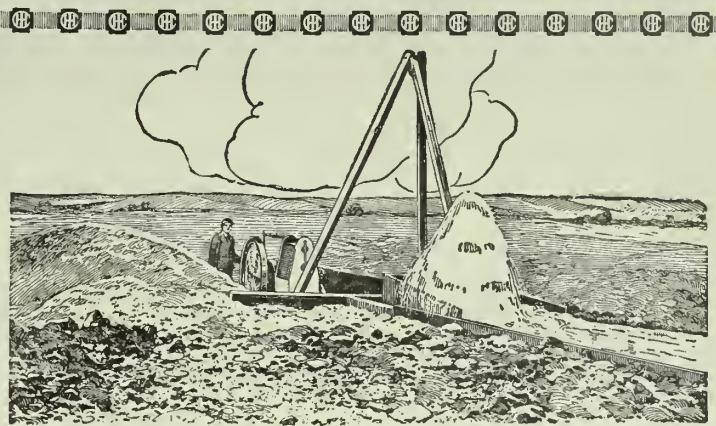


A DINNER WAGON.

Among the suggestions offered is the use of the handy "dinner wagon," figured in the accompanying illustration. The circular says: "In homes where it is necessary to have a separate kitchen and din-

ing room, it should be considered necessary to have a so-called "dinner wagon," an illustration of which is given. The dinner wagon can be made by anyone who knows how to handle tools at all, and, as you see, is in reality a two or three-story table on wheels. This should stand near the kitchen stove, and on it

should be placed everything required for the meal. It can be wheeled in to the dining room or to the table, and then set aside until required to move everything from the dining table back to the kitchen. Think of the countless steps saved by the use of such a simple little appliance as this."



An Independent Irrigating System Is the Best

INDEPENDENT irrigating systems, when properly operated, prove true to their title—they make you independent of rain or other uncertain sources of supply. Almost without exception, they prove the cheapest and most satisfactory. If you are able to secure a sufficient supply of water by sinking wells, or from a lake or stream, you should start today to lay out a good irrigating system. Dependable power is easy to obtain. An

I H C Oil and Gas Engine

will take care of the pumping and will also furnish power to run any farm machine. It will require no watching except to keep it properly oiled. It is the cheapest and most dependable power you can secure.

I H C engines are built in many styles—vertical, horizontal, portable, skidded, air-cooled, water-cooled; in sizes from 1 to 50-horse power. They operate on gas, gasoline, naphtha, kerosene, distillate, alcohol. I H C tractors are built in sizes from 12 to 60-horse power. There are also spraying, pumping, hay baling, wood-sawing, outfits, etc.

Get our interesting irrigation catalogue from the I H C local dealer, or, write the nearest branch house for a copy.

WESTERN BRANCH HOUSES: Denver, Col.; Helena, Mont.; Portland, Ore.; Spokane, Wash.; Salt Lake City, Utah; San Francisco, Cal.

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Paint Keeps Things Bright and Clean

Porch chairs and settees, flower pots, screen doors, window screens, kitchen furniture, cupboards, refrigerators, etc., are subjected to constant exposure and wear and soon become soiled and shabby.

Paint these things regularly each Spring with

LITTLE GEM HOUSEHOLD PAINTS

They will always look bright, clean and attractive. These paints are OLD MISSION products and made expressly for household uses—in 32 rich, durable colors. Put up in small cans and are ready for the brush.

ASK YOUR DEALER FOR COLOR CARDS

He carries the full OLD MISSION line. If he can't supply you, write us, mentioning his name, and we will see that you are supplied promptly.



THE MARKETS

San Francisco, April 30, 1913.

(Unless otherwise noted, quotations represent prices paid to the growers.)

Cereals.

WHEAT.

Wheat remains quite firm here in sympathy with the Eastern market, though there is little business locally except in a small jobbing way, all large supplies being brought from the North.

California Club, ctt.....	\$1.60	@1.62½
Forty-fold	1.65	@1.67½
Northern Club	1.60	@1.62½
Northern Bluestem	1.70	@1.77½
Northern Red	1.62½	@1.80

BARLEY.

The week opened with a little advance in all feed grades, which are pretty firmly held at the new figures. Considerable stock has been brought from the North of late, and the outlook for the new crop appears less favorable.

Brewing and Shipping...	Nominal
Choice Feed, per ctt.....	\$1.45 @1.47½
Common Feed	1.40 @1.42½

OATS.

There is hardly any movement except in white oats, quite a lot of which have come in from the North. With a light crop in prospect, prices are firmly held at an advance.

Red Feed	\$1.65 @1.85
Seed	2.00 @2.10
Grav	Nominal
White	1.65 @1.70

CORN.

Eastern grades remain firm in sympathy with primary markets, though local business is limited. California corn is also quiet here, but offerings are rather light and find a fair sale at the prices quoted. There is nothing new in Egyptian or Kaffir corn.

Cal. Yellow	\$1.60 @1.65
Eastern Yellow	1.60 @1.65
Eastern White	1.60 @1.65
Kaffir	1.50 @1.55
Egyptian	1.70

RYE.

This grain is still neglected, but with only moderate offerings quotations are maintained nominally at the old figures.

Rye, per ctt.....	\$1.40 @1.45
-------------------	--------------

BEANS.

The bean market continues in the same rut as for some time past, white beans being the only varieties to receive any attention from the larger buyers. Both large and small white, however, have been in fair demand for shipment, and prices are accordingly higher. Pink beans, which showed a little firmness last week, have dropped back to the old figures. In other lines there is hardly any business except in a small jobbing way, and the market is rather easy, though so far dealers have not been disposed to force business by lower prices.

Bayos, per ctt.....	\$3.25 @3.45
Blackeyes	3.15 @3.25
Cranberry Beans	4.70 @5.00
Horse Beans	2.25 @2.35
Small Whites	5.00 @5.15
Large Whites	4.50 @4.65
Limas	5.35 @5.45
Pea	Nominal
Pink	3.50 @3.60
Red Kidneys	4.00 @4.25
Mexican Red	4.00 @4.20

SEEDS.

The season of activity in this line is about over, the local movement having been rather light. Prices on alfalfa, etc., are now largely nominal, and some lines are easier, millet being lower.

Alfalfa	15 @17 c
Broomcorn seed, per ton...	\$27.00@28.00
Brown Mustard, per lb.....	3½c
Canary	6 @6½c
Hemp	3c
Millet	2½ @2½c
Timothy	Nominal
Yellow Mustard	Nominal

FLOUR.

The flour situation shows very little change, nothing new in values having developed for some time, though the market is firm in sympathy with grain conditions.

Cal. Family Extras.....	\$5.60 @6.00
Bakers' Extras	4.60 5.20
Superfine	3.90 @4.10
Oregon and Washington..	4.90

Hay and Feedstuffs.

HAY.

Arrivals in San Francisco for the last week have been hardly as large as for the previous week, and while offerings continue to clean up readily here, there is no great activity. Grain hay, though no higher, is still firmly held at last quotations. Dealers predict lower prices as soon as new hay is ready for market, and as some volunteer hay is now being cut, the new offerings are expected soon. The little stock left in the country, however, is held at high prices. While crop conditions are good in some localities, the general outlook is poor, and there are indications that considerable hay will have to be brought in from other quarters, though comparatively reasonable prices are expected on such stock. Alfalfa is a little lower on larger arrivals.

No. 1 Wheat, or Wheat and	
Oat	\$19.00@22.00
do No. 2	16.50@19.00
Lower grades	15.50@16.00
Tame Oats	16.00@21.00
Wild Oats	14.00@18.50
Alfalfa	12.50@15.50
Stock Hay	9.00@11.00
Straw, per bale.....	35 @ 80c

FEEDSTUFFS.

A general advance is noted, covering nearly all varieties. The demand is keeping up on a comparatively large scale, and the increasing firmness in the grain market has caused a corresponding condition in feed.

Alfalfa Meal, per ton.....	\$21.00@23.00
Bran, per ton	26.50@28.00
Oilcake Meal	35.50@36.50
Cocoanut Cake or Meal.....	Nominal
Cracked Corn	34.00@35.00
Middlings	33.00@34.00
Rollod Barley	30.00@31.00
Rollod Oats	35.00@36.00
Shorts	27.00@28.00

Garden Truck.

VEGETABLES.

Supplies of onions are still rather large here, several varieties being offered. The first new reds have come in, but quotations have not yet been established. Australian and Bermuda onions are held at firm prices, but move only in a limited way. Garlic is unsettled, with good old stock scarce and higher. Spring garden truck is coming in more freely, and prices in general are working toward lower levels. String beans are appearing in fair quantities, and prices are declining, although still fairly high. The market has been fairly flooded with asparagus, and canners are taking the surplus at much lower prices, while rhubarb is somewhat higher. Green peas continue to drop, with very heavy offerings, and green peppers are very much lower. Cabbage has stiffened up a little, while cauliflower is lower.

Onions: River, Yellow, ctt...	85c@1.00
Oregon, per ctt.....	\$1.00@1.15
Australian	4.00@4.50
Bermuda, crate	1.25@1.35
Garlic, per lb.....	2 @ 4c
Tomatoes, per crate.....	4.00@4.50
Cucumbers, per doz.....	75c@1.00
Cabbage, per ctt.....	50c
Carrots, per sack.....	75c
Cauliflower, per doz.....	40 @ 50c
Celery, crate	2.00@2.50
Rhubarb, box	60 @ 1.25
Artichokes, doz.....	10 @ 25c
Green Peppers, lb.....	15 @ 25c
Lettuce, crate	50c@1.00
Green Peas, lb.....	2½ @ 3½c
Asparagus, box	40c@1.25
String Beans, lb.....	10 @ 20c

POTATOES.

No change is noted in old stock, all lines being fairly steady at the old quotations. New potatoes, however, are coming in more freely all the time, and prices are gradually dropping off, while the demand is increasing.

River Whites, ctt.....	50 @ 65c
Salinas, ctt.....	75c@1.10
Oregon, ctt.....	50 @ 65c
Sweet Potatoes	3.00@3.25
New Potatoes, lb.....	1½ @ 3c

Dairy Produce.

POULTRY.

Arrivals of chickens are now running about even with requirements, but prices are pretty firmly maintained, especially on young stock. Small broilers and fryers are especially strong, being quoted at a further advance, while hens, which are arriving in fair quantities from the East, are easy.

Large Broilers, per lb.....	29 @32 c
Small Broilers, per lb.....	32½@33 c

Fryers, per lb.....	27 @29 c
Hens, extra, per lb.....	19 @20 c
Hens, large, per lb.....	18 @19 c
Small Hens, per lb.....	17 @18 c
Old Roosters, per lb.....	10 @12 c
Young Roosters, per lb.....	22 @25 c
Squabs, per doz.....	\$2.25@2.50
Geese, per pair.....	1.50@2.00
Ducks, doz.....	4.00@6.00
Turkeys, dressed	22 @24 c
do live	22 @23 c

BUTTER.

The general range of prices has been a little higher than for the previous week, the arrivals having been rather light, with a good demand for shipment. With larger receipts at the moment, however, quotations stand the same as a week ago.

Thurs. Fri. Sat. Mon. Tu. Wed.	
Extras ...26½ 26½ 26½ 27 27 26½	
Firsts ...26 26 26 26 26 26	

EGGS.

The movement for the last week has been slightly downward, with arrivals rather heavy, though there is still a large movement into storage, keeping extras steady as now quoted. Firsts are weak and ½c. lower, while pullets remain firm as last quoted.

Thurs. Fri. Sat. Mon. Tu. Wed.	
Extras ...20½ 20 20 19 19 19	
Firsts ...18½ 18½ 18½ 18½ 18 18	
Selected	
Pullets...17 17 17 17 17 17	

CHEESE.

The only quotable change is an advance in fancy flats, supplies of which have been less excessive than a couple of weeks ago. Y. A.'s are firm at the old figures, while Monterey cheese is very easy, with large offerings.

Fancy California Flats, per lb.....	14 c
New Young Americas, fancy.....	14 c
Monterey or Jack Cheese.....	14 @15 c

Deciduous Fruit.

The principal feature of the week has been the arrival of cherries, supplies of which have steadily increased, though they are not yet very plentiful. Prices, however, have been dropping, and while a few of the best Purple Guignés are selling up to \$2 per drawer, ordinary lots of poorly colored fruit move slowly at a much lower figure. With larger supplies of good stock, however, a better demand is expected. All lines of strawberries are much lower, with a rapid increase of offerings both from nearby districts and from Fresno and Los Angeles. The reduced prices have brought out a strong demand, and arrivals are cleaning up well. Stocks of apples have been greatly reduced, and with a continued fair movement prices are well maintained.

Strawberries: Fresno, crate.....	\$1.50@1.75
Longworth, drawer	40 @ 60c
Other varieties, drawer...	30 @ 50c
Apples: Red, box	75c@1.00
Newtown Pippins, 4-tier..	1.10@1.35
Cherries:	
Purple Guigne, drawer....	1.00@2.00
White	75c@1.00

Dried Fruits.

Prices still remain about stationary, but the market in general is getting into better shape, with a gradual increase of demand for several lines. Packers have marked up their selling prices a little, and in lines of which any quantity is held by the growers there is a possibility of better values being realized before new fruit comes in. The export demand for prunes, which has already taken a large part of the holdover, is again in evidence, and some dealers now look for a close clean-up. Large sizes are hard to get. Apricots are very strong and receive more interest owing to the poor crop outlook, though prices stand as before. The raisin market remains firm as before, the demand being helped considerably by Raisin Day advertising as well as by the success of the growers' company. Apples move off very slowly, and with considerable stock left in first hands values show no firmness. The New York Journal of Commerce says: "A fairly active demand for spot California prunes has developed. Numerous orders for 25 to 50-box lots have been received by local distributors from interior points with a request for quick shipment, which was taken as an indication that stocks at these points are at a very low ebb. New York buyers are also more in evidence, though they are not disposed to take any lots of consequence. Many of their orders are for 5 and 10-box lots, but they come back frequently, showing that the consuming demand is fairly active. Apricots are also in demand, but not to the extent of prunes."

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FARMS WANTED—List your property with us. Best plan ever discovered to bring buyer and seller together cheaply and quickly; better than advertising and NO COMMISSIONS. Send for selling plan at once. MUTUAL REALTY ASSOCIATION, Dept. 1, Soledad, Cal.

FARMS WANTED—We have direct buyers. Don't pay commissions. Write describing property, naming lowest price. We help buyers locate desirable property free. American Investment Association, 93 Palace Bldg., Minneapolis, Minn.

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Sebastopol apple and berry lands, Sonoma county. Send for booklet telling advantages of investment in this good productive country where no irrigation is required. John F. Byxbee, Palo Alto, Cal.

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STOCK RANCH

Situated at the mouth of the beautiful Arroyo Seco Canyon, ten miles South of Soledad and six miles southeast of Paraiso Springs, see map of California. This ranch contains a total of 1500 acres; 900 acres of farm land sowed to grain and alfalfa, and 600 acres of fine grazing land. On the ranch are 60 mares, 30 yearlings and two-year-old colts, 20 head milch cows, 175 head fine hogs, one large imported "Jack" stands 16½ hands high, one pure-bred Percheron imported stallion. This ranch is thoroughly equipped with a complete stock of farming implements, all in first-class condition; has a house of 8 rooms and bath, 2 barns, blacksmith shop, granary, wagon sheds, one 15 H.P., one 6 H.P. and one 2 H.P. gasoline engines, electric lights, and one 15 H.P. motor and irrigating pump, telephone and all the conveniences of an up-to-date farm. A complete ranch watering system installed at a cost of \$1000; also a vegetable garden of 4 acres; \$1000 can be realized from oak wood each year. Forty horse and mule colts are due this spring. This is a snap for \$67,500. Write me immediately.

KARL T. ROMIE, Soledad, Monterey, Cal.

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ALFALFA HAY—We will have a good quality, new crop, ready to ship about May 15th. Let us quote you prices. C. W. VANNOTE, Gridley, Cal., R. D. 1.

Dairy route; only wagon in town; 18 cows and necessary equipment. Address W. B. Smith, Lakeport, Cal.

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give the same satisfaction as new ones. Expert mechanics rebore the cylinders, make new pistons, and rings, and refinish all bearings and wearing parts. Every engine carefully tested for capacity and operation and sold with a rigid guarantee. As we can furnish any size or make at extremely low prices, you cannot afford to purchase an engine without first getting our proposition. We can refer you to many satisfied customers. SPECIAL: 4-hp. Samson, \$100; 4½-hp. Olds, \$115; 6-hp. Peerless, \$125; 8-hp. Samson, \$145; 10-hp. Samson, \$170; 20-hp. Callahan, \$400; 25-hp. Union, \$410. Information cheerfully furnished. Write today. MECHANICAL INSTALLATION CO., Engineers, 181-189 2nd St., San Francisco.

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PATENTS

cots on the spot are firmer and receive more attention in a jobbing way. The demand for peaches on the spot is still limited, but stocks held here are not burdensome, and a steady feeling prevails. The approach of Raisin Day, April 30, is being heralded by a liberal display of posters and publicity literature, and it is expected that the campaign now being inaugurated by wholesale and retail dealers will result in a largely increased consuming movement in raisins during the next few weeks. At present the market is quiet, but the tone is firm."

Evap. Apples, per lb..... 3@ 4c
Apricots Nominal
Figs: White Nominal
 Black Nominal
 Calimyrna Nominal
Prunes: 4-size basis..... 2½@ 4c
 (Premium: 1c for 40s-50s; 2c for 30s-40s.)
Peaches 3½@ 4½c
Pears 4 @ 7 c
Raisins—
Loose Muscatels in sweatbox 2¾c
Thompson's Seedless..... 5 c
Seedless Sultanas 3 @ 3½c

Citrus Fruits.

The Eastern auctions for oranges and lemons continue to demand fruit at good prices. Best grades of frost-free oranges are bringing from \$3.50 to \$5 per box, while poorer grades and some frosted are selling from \$3 down to \$2 per box. Lemons are selling from \$5 to \$6 for best grades, with good demand. Shipments from southern California are growing a little heavier as the season advances, it being estimated that about 1,500 cars will be sent out during the balance of the season. Orange trees in all sections are blossoming unusually freely, but as many of the new growth spurs are very small, either much of the fruit will drop in June or it will mature into small sizes.

Florida is still sending oranges to market and is closing one of the most prosperous seasons in its history. A meeting of practically all growers of that State was held recently and perfected an organization for co-operative packing, selling and advertising for next season.

San Francisco prices on all citrus fruits are steadily held at the former level. The demand is moderate but steady, and the arrivals are kept fairly well cleaned up.

Oranges, per box—
Navels, good to fancy....\$ 2.50@ 4.00
Grapefruit, seedless 2.50@ 6.00
Lemons: Fancy 6.50
 Choice 5.00@ 6.00
Lemonettes 4.00@ 4.50
Limes 5.00@ 6.00

Nuts, Honey, Hops, Etc.

NUTS.

Values are altogether nominal, as there is nothing left in first hands, and nothing has been done as yet on the new crop.

Almonds—
Nonpareils 17½c
I X L 16½c
Ne Plus Ultra..... 15½c
Drakes 12½c
Languedoc 11½c
Hardshells 8 c
Walnuts, 1912 crop—
Softshell No. 1.....16 @16½c
Hardshell No. 1.....15 @15½c
 No. 2 10½c
Budded 17 c

HONEY.

The local market shows little change, first-class lots being scarce and firm, with a good demand, while inferior stock is steady and quiet.

Comb, white15 @16 c
Amber11 @12 c
Dark 9 @10 c
Extracted, white 8 @10 c
 Amber 6½@ 7 c
 Off Grades 5 @ 6 c

BEESEWAX.

There is practically no wax coming in at present, and as the local supply is in strong hands, values are well maintained, though there is not much demand.

Light30 @31 c
Dark29 @30 c

HOPS.

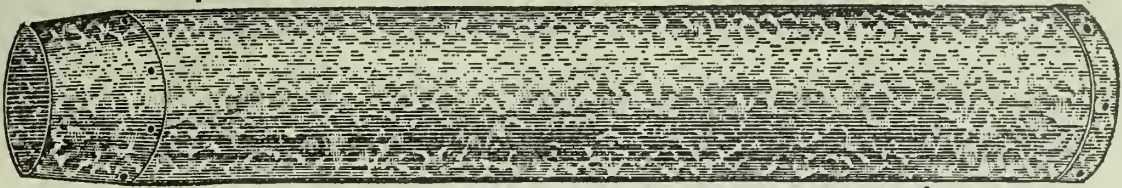
Some activity is reported of late in the Oregon market, but there is not much business here, the old stock being well cleaned up, while neither buyers nor sellers appear anxious as yet for business on new crop stock.

1912 crop12½@18 c
1913 contracts13 @15 c

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LOCK THEM WITHOUT RIVETS. NO ROUND SEAMS TO LEAK



Will outlast any other pipe made—Easily handled—best for irrigating alfalfa. (We make and recommend Riveted Pipe for underground use only.) Write for Illustrated Catalogue, Irrigation Folder, and ask us "How to Test Pipe."

AMERICAN STEEL PIPE & TANK CO.

354 Pacific Electric Bldg., Los Angeles, Cal.

Live Stock.

Numerous changes are noted, both in live stock and dressed meat, the change in everything but dressed steers and small veal being downward. All weights of live calves are lower, and sheep and lambs have also declined, with more disposition to sell among stockmen. Hogs, also, are coming in rather freely and show a decline.

Steers: No. 1	7½@ 7¾c
No. 2	7 @ 7¼c
Cows and Heifers: No. 1....	6½@ 6¾c
No. 2	5¾@ 6¼c
Bulls and Stags.....	2½@ 4½c
Calves: Light	7 @ 7½c
Medium	6½@ 7 c
Heavy	5 @ 6 c
Hogs: Grain-fed, heavy....	8 @ 8¼c
150 to 250 lbs.....	8¼@ 8½c
100 to 150 lbs.....	8 @ 8¼c
Prime Wethers	5½@ 6 c
Ewes	4½@ 5 c
Lambs: Suckling	6 @ 6¼c

DRESSED MEATS

Steers	12 @12½c
Heifers	11 @11½c
Veal large	10 @11 c
Small	12½@13½c
Mutton: Wethers	11 @11½c
Ewes	10 @10½c
Suckling Lambs	13 @13½c
Dressed Hogs	12½@13 c

WOOL.

While a little business has been done, local buyers are taking little interest in the spring clip, and values are almost entirely nominal.

Spring clip:
Southern mountain, free.. 9 @12 c
Northern, year's staple... 14 @16 c

HIDES.

Prices have not changed, but the demand is picking up a little, and somewhat better values are expected before long.

Heavy Steers, over 56 lbs.	14 c
Medium	13 c
Light Steers, under 48 lbs.	12 @13 c
Heavy Cows, over 50 lbs..	12 @13 c
Light Cows, 30 to 50 lbs..	13½c
Kip	14 @15½c
Veal	17 @18½c
Calf	17 @18½c

Orv—
Dry Hides 24 @25 c
Dry Kip, 10 to 15..... 24 @25 c
Dry Veal, 5 to 10..... 29 c
Dry Calf, 7 down..... 29 c

HORSES.

The prices realized in recent sales have not been satisfactory, and some of the stock, mostly of lighter and medium weight, has been withdrawn from the market. The trouble seems to be the high price of feed, which is causing a general lack of interest among city buyers, and on many animals it has been impossible to get as good offers here as in the country. Some fine heavy stock is coming in this week, and somewhat better prices are expected.

Heavy drafters, 1700 lbs. and over	\$300@350
Light Drafters, 1500 to 1650...	250@285
Chunks, 1350 to 1500 lbs.....	200@250
Wagon Horses, 1250 to 1350...	180@225
Delivery Horses, 1050 to 1250..	125@150
Desirable Farm Mares.....	100@125

MULES.

1200 lbs.	\$200@250
1100 lbs.	150@200
1000 lbs.	125@175
900 lbs.	75@125

Ship your **POULTRY, EGGS, HONEY, DRIED FRUIT, RAISINS, NUTS, DRESSED CALVES**, and Produce of all kinds to the old Reliable firm of **W. C. PRICE & CO.**, 211, 213, 215 Clay St., San Francisco, Cal.

Highest market prices and immediate cash returns guaranteed. Liberal advance made on all shipments. Consignments and correspondence solicited. Write us before shipping elsewhere.

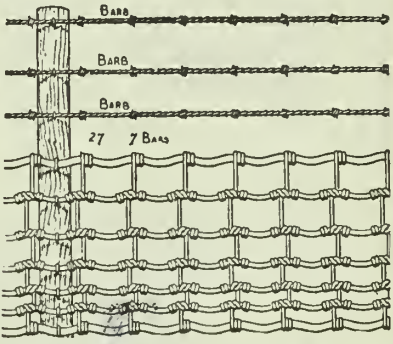
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Strong Because it is made of large, high carbon self-regulating coil spring steel wires.

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Estimates Given **Every Rod fully Guaranteed** **Contracts Taken**

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On various dates during May and later, from Los Angeles and all other points on The Salt Lake Route.

ROUND TRIP FARES

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BOSTON	\$110.50	PORTLAND, ME.....	\$113.50
CHICAGO	72.50	SALT LAKE.....	40.00
DENVER	55.00	ST. LOUIS.....	70.00
MONTREAL	108.50	ST. PAUL.....	75.70
NEW YORK.....	108.50	TORONTO	95.70
MISSOURI RIVER POINTS.....			60.00

and several other destinations at greatly reduced fares.
From Beach points fares are 70 cents more.

GO ONE WAY AND RETURN ANOTHER

if desired, without extra fare.

Full particulars at Ticket Offices

Salt Lake Route

Los Angeles Office, 601 So. Spring Street
San Francisco, 680 Market Street

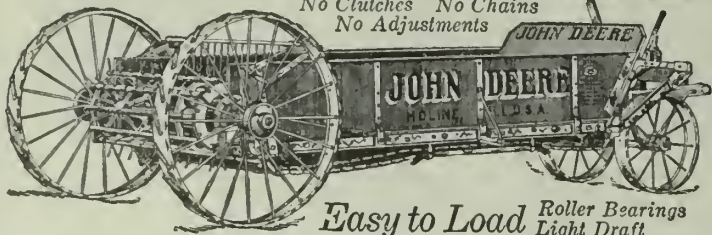


John Deere Spreader

The Spreader with the Beater on the Axle

The Simplest Spreader Made

No Clutches No Chains
No Adjustments



Easy to Load Roller Bearings
Light Draft

Decided Improvement in Spreader Construction

Up to this time every spreader on the market has been constructed along the same general lines.

The John Deere Spreader, however, is different. It is entirely new and there is nothing else like it on the market.

All the working parts are mounted on the main axle. There are no strains and stresses on the sides or frame and no clutches or chains to give trouble.

The John Deere Spreader is low down, easy to load, very simple, and always ready for business. It cannot get out of order.

Beater on Axle

All the working parts on the John Deere Spreader are mounted on the rear axle. There are no independent studs or shafts to give trouble, nor chains or sets of gears to get out of order. All strains and stresses are borne by the main axle and are not transmitted to the side of the box or the frame of the spreader.

Power to drive the beater is taken from the rear axle and operates through a planetary transmission (similar to that used on automobiles) mounted on the rear axle within the heater.

Light Draft—Few Parts

There are at least two reasons why the John Deere Spreader is the lightest draft spreader made. One is that it has four sets of roller bearings; two in the front wheels and two on the main axle and beater. They reduce the draft materially.

Another reason is that the John Deere Spreader has so few parts. It has about 150 less types of castings than the simplest spreader heretofore made. It is only natural that the fewer parts a machine has, the easier it will operate.

When the John Deere Spreader is out of gear, it is simply a wagon.

Easy to Load

The first three feet manure is lifted with an ordinary spreader arc easiest of all. The real hard work is from this height to the top of the ordinary spreader.

The John Deere Spreader is low down. It is only necessary to lift each forkful

three feet. Thus, the hard work of loading a manure spreader is done away with. Besides, the person doing the loading can see inside the spreader at all times. Each forkful is placed exactly where it is needed.



Easy to Load

No Adjustments

On the John Deere Spreader no adjustments are necessary. On the simplest spreader heretofore made, it was always necessary to make from ten to twenty adjustments before the machine would work at all.

John Deere Spreader is thrown in gear by moving a heavy dog back until it engages a stop at the rear of the machine. No clutch used.

Positive Non-Racing Apron

By the use of a very simple locking device inside the ratchet feed, the apron is positively locked against racing when spreading up hill or over exceedingly rough ground. The result is that when spreading with the John Deere Spreader the manure is always spread evenly. This is not possible on any other ratchet feed spreader made.

Change of Feed

Change of feed is accomplished by a double shoe which is moved from the seat. This shoe determines the number of teeth the ratchets engage at each stroke. The John Deere Spreader has a variation of from five to twenty-five loads to the acre.

Substantial Steel Frame, Like the Modern Railway Bridge

Both the side sills in the John Deere Spreader are of high carbon channel steel with the channels turned to the inside. Into these hollows are fitted four large wooden cross sills. Being bolted, these cross sills can be kept tight, insuring rigidity and alignment of frame at all times.

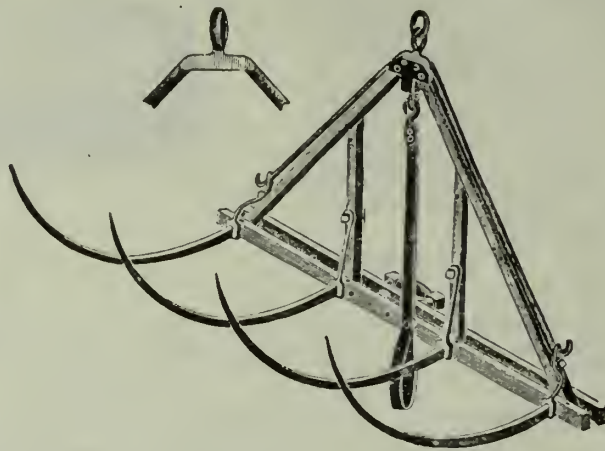


Built Like a Steel Bridge

Even if You Don't Need a New Spreader Now, Come in and See It.

JOHN DEERE PLOW CO., SAN FRANCISCO

Benicia Jackson Derrick Fork



This fork is made of the best materials and is in every way a little better than any other; in some ways a great deal better.

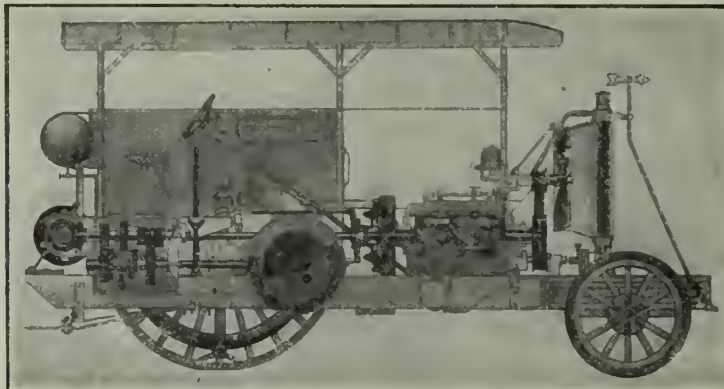
Made not for service alone, but to stand actual Abuse. Made for light and heavy hay and with special long tines for mountain hay, when required. High carbon steel tines. High grade hickory. Low price. Order yours now.

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Manufacturers

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or are you sticking to the traditions of your forefathers and using muscle instead of brain? Brain in farming means using the most modern and economical implements obtainable. And speaking of economy, don't confuse an investment with an expenditure. What kind of power do you use? Let us tell you about the

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THE PACIFIC RURAL PRESS

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SAN FRANCISCO, SATURDAY, MAY 10, 1913.

Forty-Third Year.

Starting a New Cherry District.

[BY OUR ASSOCIATE EDITOR.]

Go into any part of the State where cherries are successfully and profitably grown, and ask why more planting is not done, and one answer will nearly always be given; that is, that there is practically no available land that is entirely satisfactory for cherries. It is most rare that cherries are not considered the most profitable crop, provided soil and moisture conditions are everything that they well could be. Hardly any other kind of fruit, unless it be pears and apples, will produce more consistently one year to another, and hardly any other kind of fruit meets better market conditions. It is the first fruit shipped and the most delicious; the canners are always anxious to get large

field, and a grain field only. The cream had been skimmed from it in two respects. First, only the surface had been touched, and it is to the surface that the cream rises. In the second place, the flush of virgin vigor had been removed by such long tillage of a single, shallow-feeding crop, and there was a falling off in fertility, though the soil is heavy enough to be enduring and quite satisfactory yields continued to be secured.

The change came from the very obvious desire to find out what was in the soil. At least it would appear the very obvious thing to do to find out how much soil there was, though except where a well was dug or something of that sort, nobody ever got below the plow-sole, which is the case over nearly all of California that is still in the rut.

Arthur H. Hewitt, whose folks had long grain farmed a lot of property here, got a soil auger and started to prospect. The surface was



Harvesting Cherries—Scene in a Big Producing Orchard Near Walnut Creek, Contra Costa County.

quantities; there apparently is not the slightest danger of overproduction, especially since there is no great possibility of any great increase of acreage and no danger of serious competition from any other State. Thus the only thing required, ordinarily, is to find the spot where soil, moisture, and climate are satisfactory.

That all the land available has not been planted is evident from development along Little Johns creek, just west of Farmington, San Joaquin county, where in the last four years a new fruit district has been started and cherries outnumber all other kinds of fruit, and the trees have made a fine, healthy growth that is unsurpassed anywhere in the State. The land lies alongside of a dry creek bed which runs water only when the rains are heavy in winter, and there seems no reason why along other creek beds on the floor of the great valley, especially where the heat is not too great, other locations might not be found that would be just as satisfactory in every way. The essential thing, though, is to be sure that soil and moisture are entirely satisfactory, for the cherry is, by a good margin, the most particular tree in its likes and dislikes of any grown here.

How It Came About.—The way it came about was due entirely to this very thing—the appreciation that the soil and moisture were just what they should be. The country since cultivation started had been what most other good land in the interior valley had been—a grain

a medium to heavy loam, almost of an adobe type, except that there was so much sand that it acts like a loam rather than adobe. This makes a strong, fertile soil of excellent physical condition. It went three to four feet down and merged into a much lighter soil, one with lots of sand, which continued down to the water that naturally accompanied the creek bottom. This lies at a depth of about 14 to 16 feet. Mr. Hewitt had known of the cherry soil in the Vaca valley and saw that this corresponded almost entirely with that; therefore he was sure that it would be many times more valuable for cherries than grain.

Cherry Needs.—This is exactly what cherries need. They are good growers, but very particular in their desires. The soil on top should be fertile and strong and heavy enough, without being too heavy for good aeration. In the second place, it should be deep enough to give lots of room for the roots to feed in. The subsoil should be light and give the drainage that is absolutely necessary for successful cherry growing, and the moisture below near enough to be drawn up by capillary attraction to give the trees an even supply of moisture. It was this kind of soil that was found. There was a rich, deep soil, good drainage, sufficient moisture at all times, and never too much moisture. With anything lacking, cherry trees would not be very profitable.

(Continued on Page 541.)

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D. J. WHITNEY - - - - - Associate Editor

CALIFORNIA WEATHER RECORD.

The following rainfall and temperature record is furnished the PACIFIC RURAL PRESS by the United States Department of Agriculture Weather Bureau, at San Francisco, for the week ending at 5 p.m., May 6, 1913.

Stations.	Rainfall Data.			Temperature Data.	
	Past Week.	Seasonal to Date.	Normal to Date.	Maximum.	Minimum.
Eureka .....	.04	33.79	43.05	56	46
Red Bluff .....	.00	17.40	23.61	88	46
Sacramento .....	.00	7.38	19.80	86	48
San Francisco	T	11.32	21.52	68	48
San Jose .....	.00	5.57	16.20	82	36
Fresno .....	.00	5.88	9.13	92	40
Independence .....	.00	4.10	8.97	80	28
San Luis Obispo .....	.00	7.66	19.82	72	36
Los Angeles .....	.00	12.79	15.27	72	48
San Diego .....	.00	5.80	9.70	64	48

The Week.

It is easy to believe that the summer has really started. It seems but a week or so since the blossoms disappeared, and yet the first fruits of the summer are already in the market. It is several weeks since the first box of cherries were shipped overland as a harbinger of California summer and of Eastern spring. Now the first few boxes of cherries, owing their greatest value to their rarity, are being followed by regular shipments, and our first tree fruit is in the market as a regular thing. Soon cherries from other districts will come, then apricots from Imperial valley, then apricots elsewhere, and in hardly any time the rush of summer shipping will be on. From the ocean also comes the tokens of summer. The annual battle between the cold of the ocean and the warmth of the air from the land is on, and the smoke of the battle in the form of summer fogs has begun to drift in through the Golden Gate, attempting to press up through the Straits of Carquinez into the interior, only to be dissipated by the sunshine that is ripening the fruits. This also shows us that the cherries that show their red cheeks in the fruit-stands are in their proper season. Even the legislature has decided to make the date of this issue the last day for their work. The State can now get down to business.

The Coming Year.

The significance of these indications is apparent. Winter is gone; our future can be predicted. Showers may fall, but no heavy rains will cover the State after the summer fogs have really begun in earnest. Nor will heavy snows fall on the Sierras; the moisture that we have is practically all that can be expected to help crops until summer has passed and the next winter, if it can be called that, comes around. In general aspects it is this year as it was last: the rainfall is very short, other water supplies only a little below normal. How to make the most of the moisture

on hand is the problem. Taking last year as an example, the prospects are not bad. Although the cry at first was "too little rain," we had the largest crop of deciduous fruit in history, and the largest butter production, therefore production of alfalfa. This year the frosts will prevent an equal fruit crop, but even with our less moisture, last year's example shows that good care may make good crops. Little moisture means small sizes and a struggle for the tree. Thinning means large sizes and less struggle for the trees and better prices. And of equal importance with the thinning is the cultivation. The same moisture may come on two fields side by side; one may be cultivated well, the soil kept in excellent physical condition, all the moisture kept for the trees, and the crop will be large; the other soil may be neglected and the crop will be small, the quality poor, and returns small also. The first great thing is good culture to conserve moisture, and that holds true for dry and irrigated farming. For the irrigator there is the necessity for stopping all leaks in ditches, preventing losses from leaks and unnecessary evaporation, getting the water deep into the soil and well distributed.

Underground Supplies.

The most promising source of moisture for quick returns is in the underground supplies that can be found in all parts of the State, under nearly all land when the land itself is perhaps dry and unproductive. This but awaits the pump which can be run in many ways, by electricity, crude oil or the oil products, or even by the wind. Whether the supplies are large or small, there are pumps and sources of power that are most fitted to them. No supplies need be too small. California soils are noted, with all arid soils, for the amount of vegetation that small supplies of water will produce. As it was the last straw that broke the camel's back, so it is the last drop of water that saves the crop, and a little moisture from the pump that can be added to what comes in the small precipitation, or from the gravity system may return large interest. The wells stay where they are, the pump and power machinery depreciates but little.

Prepare for the Silo.

The man that succeeds is the one that thinks in time and suits his action to his thought. In a few months a lot of people are going to wish they had some green feed to carry their cattle along and they will think how good a silo would be. They could build the silo, perhaps, in time, but would not have the material to put in it. By thinking and acting now they would have the material. With hardly an exception, the owners of silos are seeing that corn of some kind makes the silage that is wanted in alfalfa districts, and the present is the time to put in the corn. Only a small amount of irrigation will be necessary to give the yield that will fill a silo, and that irrigation can be over earlier in the season than would irrigation for alfalfa. And if there is even not enough moisture for Indian corn, the sorghums are noted for the small amount of moisture that they require, and a forage sorghum is but waiting the opportunity to live for itself, that it may live again as beef, butter and dairy products. The silo can be put up later; the crop should go in immediately. Every year it is good; this year, with the shortage of food for the cattle, with the high prices of cattle by the time that next spring comes around, it will be doubly good.

This is a good time, by the way, to remind the would-be owner of a silo not to get too ambitious. It is a California trait to want to do too much, to undertake too big a job, and this is more disas-

trous with a silo than with almost any other thing. Silage is fermented stuff and does not keep when exposed to the air, but has to be fed within a couple of days. Build too big a silo and the amount exposed to the air is too great and spoils, the cattle do not like it, eat still less, and give the rest a still greater chance to spoil. It is a reversal of the old saying about the winter apples, "Eat the best and you will have the best all the time." Here let the cows eat too little, and they will eat the worst all the time. Moral: Gauge the size of the structure to the cattle. Do not get too ambitious. Know what you want and build that and that only.

Out in the World.

[BY THE EDITOR.]

[In our last issue Professor Wickson told how he was angling for a convert to the doctrine of Agricultural Co-operation and Rural Finance and caught a Tartar, with whom he has more trouble below.—ASSOCIATE.]

After a good night's sleep we gathered courage enough for another bout with the scandalous defamer of the farmer who beat us off the track the preceding evening. We found him in the smoking car idly tapping his pipe upon the steel mahogany and evidently awaiting the visit of the raven. He smiled blandly as we held out the pouch and match-box and said, apologetically: "I'm a little rough in my talk sometimes, but I don't hold no grudge agin' them as I smokes with."

"Surely you do not," we replied, "and I don't think you ought to cherish ill will against a man whom you knocked all about the ear as you did me last night; besides, I hold that a man of your force and sharpness ought to take part in the general movement to uplift the farmers. Everybody is doing it, for his own sake if not for the farmers, and there is going to be a great change in the attitude of the public mind toward the farming business—"

"Well, I am glad there is going to be an uplift," he wedged in, "for of all the men who are stuck on themselves, the farmers—"

"Hold on there, my friend," we interrupted, "you had your innings yesterday, and it is my turn to bat a while. I allowed you to go on knocking the farmers at our last interview because I wanted to see how much of that bad stuff you were carrying. Now I want you to follow me."

Farmers Are Just Like Other Men.

"In your shouting yesterday you seemed to claim that farmers as a class are low down in many ways and therefore need an uplift. The fact is, of course, that farmers as a class are just like other classes of men, and do not need uplifting any more than other classes. They are in this country, at least, far above the laboring classes in intelligence, capability, and property: they are as a class above the average of small tradesmen, journeymen, mechanics, able seamen, and the like. Every community in the country has some farmers who are the equals of the best and most influential men in these communities—merchants, bankers, lawyers, doctors, teachers, and what not. Now just figure a little: if you have a class whose quality averages above that of all the common people in the community who work in various ways for others, and who also occupy as many leading places in the community as any other calling, vocation or profession does—how can you help figuring out a pretty high standing, social and industrial, for the farmers?"

It is simply nonsense to talk about an 'uplift movement' for farmers. They need it, perhaps, in the same way that tinsmiths, grocers, bankers and preachers do, but any man who claims that as a class they need uplifting more than other people do, reflects on his own intelligence and common sense."

He had been listening intently, and at this point broke in: "Waal, I dunno but there's truth in that. I never thought of it jest that way before. In the place where I grew up, I remember——"

"I don't want you to remember anything just yet," we said. "You follow on a little more. I shall want you to remember a lot of things you never knew, perhaps; so hang on."

Arguing from the Particular to the General.

"It is laid down in logic, or somewhere else, no matter where, that any man who draws general conclusions from a few instances is more or less of an ass—argumentatively speaking. Now you took an old skinflint of a farmer whom you happened to remember and made him represent farmers as a class, when you know perfectly well you could get just as good a Scrouge from those following any other calling. In fact, every class can show individuals possessed by the demon of avarice, but they are exceptions everywhere, and it is not fair to make them representative at all—so there is no use of talking any more about your Deacon Smith as a farming type; he was simply a freak."

Why a Farmer Has a Right to Be a Tight-Wad.

"But there is another way to talk about the thrift of farmers—their pinching, if you like that term better—which is more significant. It also has a bearing on your claim that a farmer is a skillful money-lender and a poor borrower, for in that claim you are exactly right."

"Just as soon as the farmer escaped from a feudal lord and started in business for himself, either as a tenant or as an owner, he had to become a capitalist. He had to buy, or work for, rude tools, seeds, etc., and had to board his help, even if he had not to pay them until the crop was in; that is, he had to invest something for a future return, which constitutes a man a capitalist, to some degree. As the farmer advanced farther from serfdom, he had more need of accumulations and became more and more a capitalist, and he also gained an attitude of independence, and in time people noticed it and it became a common concession that the life of the farmer is an independent life, etc."

"This quality of mastery in the occupation arose from two facts: first, he could live upon what he produced by eating it—a condition existing with no other producer except a hunter or a fisherman; second, he had to accumulate money or establish credit, and by that fact acquired a reputation for mastery and independence in contrast with dependent laborers from whom he had distinguished himself."

"Now the farmer soon found as he accumulated money that he was liable to be robbed; he also soon discerned that it was not good sense to pile up idle money, when he could just as well make his money work for him. Thus it came about that the farmer became at first a small money-lender and there dawned on public view that old leather wallet with its foe'sle stuffed with bank-bills and its stern sheets lined with grimy papers, the notes which he had taken for moneys loaned. The old farmer's wallet was the first rural bank, or at least the forerunner of it. Later on, as their accumulations grew, farmers began to figure in real local banks as purchasers

of bank stock or as organizers of new banks. If this did not strike his fancy, he bought more land, and this increased his wealth and independence."

"Yes, you're getting that about right," broke in our companion. "I know a lot of farmers who were good financiers that way——"

"Never mind that," we cried. "I am preaching this sermon, and I don't want any 'amens' till I come to 'lastly.' You can talk then; now smoke some more and shut up. I don't want to be interrupted just now." He quieted down obediently, and we went on:

"I hope you can see that the farmer had to become a money-lender as a part of his business. Some farmers got to be skinflints, of course, just as other men do, but it is not true of farmers as a class—no matter how rich they may become. It would take too much time to demonstrate this, and it is not necessary. It is sufficiently well known that every community has always had its big-hearted farmers, men who could drop a big tear and a big bank-bill at every token of distress which came to their attention and who rolled out gold for patriotic purposes as freely as their corn-shellers rattled out corn. You know these things just as well as I do, and yet you try to dose me with silly slanders about the littleness of farmers as a class—slanders which you do not believe yourself."

"In course I do," he said, somewhat petulantly, "so what's the use lecturing me so?"

"I'm giving you the same treatment you gave me yesterday. You've got to take your medicine—here's another match."

That Millionaire Nonsense.

"Now you've got to listen," we started again, "to something about that idea of yours that the millionaires will do the farming if the farmers don't loosen up. It seems hardly worth talking about, but there is a lot of people with the same crazy notion you have, and they ought to be checked up, for they are deceiving themselves. There is plenty of room for millionaires in farming, the way supplies of food products now are, and it needs millionaires to handle the vast areas of vacant idle lands in the West and idle land in the older States which needs reclamation; but there are not millionaires enough to displace the farmers with any of their organized systems of production. Besides, millionaires, as a rule, like something easier and something they know more about. It is true that there are some millionaires who are making good investments in farming lands and outfitting large areas for direct production by their own managers and superintendents, but have you not noticed that most of these careful operators have an anchor out to windward in the form of a plan for subdivision? They know what they are about. They will finance improvements which will bring the land up to large crops and thereby demonstrate increased value which anyone can figure out for himself in terms of crops and values, and then if their overhead and underfoot charges run too high, they will cut up the land, advertise for real farmers, pocket the increment of value, making two millions grow in the bank where one grew before, and buy themselves a lot more art galleries, steam yachts, etc. It is a good game if it is played right, and some Californians have a good lay-out for it."

"These millionaires have a high regard for scientific farming, but they know just as well as anybody that you cannot get all that is necessary for scientific farming out of books and bulletins. They will work the demonstrations of science into their big farm management and policy, but they know that big farming, like big mining, big finance and everything else, has indispensable les-

sons to learn from experience."

"Did you catch that joke in the sleeping car last night? You remember how the car was yauked backward and forward until everyone was waked up and some nearly had their nuts cracked on the headboards of the berths? Well, just as the yanking was at its worst a fellow called out from his berth so that all in the car could hear: 'Say there, who wants to bet that there fellow did not learn his engineerin' in a correspondence school?' It struck me that you ought to fit that point into your notion of millionaires driving farmers out of farming. They are too smart to have any such notion themselves. They will make millions out of farming, but they will be on the outside themselves when the clean-up comes. All the good such talk as you gave me does is to give men who do not know anything about farming a chance to show their ignorance and ill will. How does that strike you?"

"Well," he said, "I'm most tired to death of your arguing and I ain't a-going to start you off again by talking back much, but I must say I don't see what all that talk has to do with what you said you were up to—learnin' farmers how to borrow money."

More Money and Where It Is to Come From.

"All right," we replied. "You are not more tired of listening than I am of talking, so I will let you off just as easy as you ask. The farming industry needs more money to finance the improvements of all kinds which are necessary to increased output from the land. It is not necessary to specify what these improvements are: they include everything from the soil to the sale of the products. Money is power, and the newer farming requires a lot of that power. It seems to be an acknowledged fact that money can be had in Europe for agricultural purposes of all kinds at about one-half the interest rates current in this country—or, at least, the interest rates which the farmers can secure. This one item of knowledge is enough to set all farmers to thinking why this is the case and to awaken curiosity, at least, to know why American farmers cannot have as good a show to get better means of greater production with a burden of interest so light that improvements would pay out. They know that they can seldom use money freely with a profit at the rates which they now have to pay. They also know that to do farming as present conditions require, increased capitalization of agriculture is imperative. They know that increased capitalization has brought European agriculture out of trouble which a few years ago seemed very hard if not hopeless, and it has also been demonstrated that with the capitalization has come a mastery of commercial conditions which assures the producer a fairer share of the selling value of his products. This issue has awakened the whole country: statesmen, educators, financiers, and others are all insistent that the American farmer shall have a fair show to discharge his function as the man who feeds all men and shall be fairly rewarded for the fundamental work which belongs to his calling. It seems to be a lesson from Europe that farmers can finance themselves by proper organized efforts, under governmental regulations which say to other classes now reaping where they have not sown, the agriculture of America must not be longer exploited for unearned income by commercial and financial interests. I am being sent abroad to see if I can find out anything about such things."

"Oh, well," said our audience kindly, "let's go to lunch; if you hold forth any longer you won't have strength enough left to crawl up the gang-plank."

Plants, Animals and Soils.

[By OUR ASSOCIATE EDITOR.]

We might call this talk on fertilization "Nature's Plans for Animal Life" and include in that everything from the smallest and most poorly developed worm to man. The point especially to be worked out is the method by which the fertility of the soil is greatly served by the presence of animal life; how, instead of being a burden on plant production and the fertility of the soil, animal life, including everything from the lowest living creatures, through domestic animals to mankind, should be a most excellent thing.

This idea is most thoroughly and excellently illustrated in the old farm proverb which runs something like this: No stock, no manure; no manure, no grass; no grass, no stock. Followed out in actual practice—provided actual practice runs as the Creator evidently designed matters—it means that unless vegetation is used to support animal life, fertility is not well preserved; that plant food is put in better form for plants when vegetation is sacrificed to make human or stock food than when vegetation is returned to the soil direct. This is our whole proposition: the help that stock or any other form of animal life is, in making the plant foods most serviceable again to plants. Thus far we have said little upon this subject, as former discussions have dealt very largely with the chemical elements like potash, lime, phosphoric acid, and nitrogen in their relation to plant growth.

The Virtue of Animal Substance.—The steady progress in the development of food until it finally becomes animal substance is apparent upon the slightest consideration of the matter. Animals cannot feed on the mineral matter in the soil, nor take their food from the air as plants do, so that is the first stage in the development of matter. This development makes it easier for the plants, as, for example, we know that plants grow much better when part of their food is former vegetable matter. While some may possibly get along with minerals and air alone, some former vegetation, put in as a cover crop, etc., causes much quicker growth. Therefore the plants like a pretty well-developed food.

The next stage is even more apparent; that is, the advantages to the food after animal life has worked upon it. For the plants we see barnyard manure the standard fertilizer all over the world, a great improvement over the cover crop, though barnyard manure is mainly roughage that the cattle did not assimilate. And when you get higher the improvement is marked even more. Tankage, once actually a part of animal matter, gives a much heavier growth than does barnyard manure, considering only the actual plant food therein, and the very highest form of plant food in existence is dried blood, one of the highest forms of animal substance possible.

If we come to animal appetite we see the same superiority of animal food to vegetable food; that is, in regard to digestibility. The protein of beef, mutton, chicken, etc., is only a form of the protein in wheat, beans, and so on; and, much as health agitators agitate as to the advantages of a vegetable diet, few people prefer a dish of beans to a well-browned steak. The food in milk was once alfalfa, in California especially, and though they say alfalfa could be a human food if well prepared, everybody is willing to let the dairy cow do the preparation. This is only to illustrate the improvements in substance that animal life makes, there being plenty of ways to show how plants like a good application of manure or some animal substance to make the best growth.

The Waste of Food.—A little thought of the kind of food that the plants manufacture and use, the sources thereof, and the sources and uses of animal food will show the waste of simply returning vegetable matter as a whole to the soil. On the other hand, animals, in theory, could take all of that vegetable matter into their systems, absorb what was necessary, get full use of it, and return as much to the soil of actual plant food as was in the vegetable matter at the start, and, as we have seen, in more acceptable form to the second generation of plants than if the vegetable matter had been left in place or plowed

under. Actually, of course, there is a waste of food, just as there is a waste of power in an engine and a waste of everything; but even in the theory of the thing there is lots of waste even in putting back plants for plant food.

We all remember when we were children in school that the teacher used to say that plants took carbon dioxide from the air, and that people in breathing used up material and sent it out to the air again as that same kind of carbon dioxide: that was nature's method of working. It is just that principle that shows the waste of using all of a plant as fertilizer, say as a cover crop, and the saving in using the plant first as animal food and then as fertilizer.

For plants have two sources of food, the soil and the air, and of these the air is by far the most important. Leaving out the moisture, or counting it as food coming from the air, and all the material in a plant except a very small part comes from the air. It is that kind of food that animals make the most use of. If it were put directly back on the soil, it would do but little direct good. Meanwhile, nearly all of the food taken from the soil can be used by an animal and also used for the plant, and there would also be enough air-made food left to put plenty of "life" in the soil.

Why This Is.—The soil foods, for instance, are lime, potash, phosphoric acid, and nitrogen, although the latter comes ultimately from the air. The air foods are starches, sugars, fat, and such substances by the time they are ready for animal use. The lime and phosphoric acid become part of the brain, muscle, bone and tissue, but are indestructible, and when their use is completed by the animal, are all there, though they may be left somewhere where no plants can get them. Very little of the potash is absorbed to be a part of animal tissue: most of it passes out by the time digestion is completed, and is ready for the soil immediately.

The nitrogen, the most important part of all, either remains in the excrements or becomes part of the animal tissue. As such, it is not made into carbon dioxide, or sent out into the atmosphere, as are the fats, sugars, starches, etc., but when the body is through with it comes off in the hair, skin, hoof, and other waste products, and can again be used by the plants with little, if any, more waste than if the original vegetable matter were put back without having performed any service to man or animal. Thus nature, in serving her animate offspring, is not robbing her vegetable offspring, but is helping both.

Theory of Cover Crop.—And just here let us see how this corresponds with the theory of the cover crop. In that the whole plant is plowed in and surely does a great deal of good to the soil in putting in a little life. For the theory of the thing it would appear that it would be better to let the stock get the benefit of the starch, sugar and fat of that growth and give what was left to the soil, and if sufficient manure could be obtained to put plenty of life in the soil, that would be very probably the case. When it comes to labor and many other considerations, the case is altered, and more would be lost in the labor of harvesting the crop, feeding it, and returning the remains to the soil where it was produced than the value of the feed used. Many other such considerations make generalizations like all the above very dangerous if a person goes to apply them to every operation. And yet it is undoubtedly true that there is a big economic waste in the kind of culture that makes it profitable to grow simply to plow under again a fine crop of cattle or horse feed. It may ultimately be found more profitable to engage in mixed farming, where several crops are raised and enough stock kept to provide plenty of manure for the soil without going to the trouble of raising something simply to plow it under.

Alfalfa for Cover Crop.—And just on this matter the proposition of raising alfalfa in a field by itself on every citrus ranch at the rate of about one acre of alfalfa to ten of trees, to take that alfalfa and apply it to the soil direct so as to get plenty of humus for the trees, instead of growing cover crops, or perhaps in addition to the cover

crops. Well, it might be profitable, but there is a fearful waste somewhere.

The fertilizing material in the alfalfa would be worth about \$10 per ton at a rough estimate, with the benefit from the ultimate formation of humus added. As a feed, alfalfa in citrus districts is worth a good deal more, and we will let it be used for feed and fertilizer also. Under those conditions its food value is high as ever; no loss there. Nearly all the potash is retained in manure and urine, and there would be only a moderate waste there if sufficient facilities were provided to prevent loss there. A good percentage of the phosphorus compounds might be absorbed, but even those would sooner or later all come out again some way. Alfalfa is so rich in nitrogen that a very large part would not be digested and would go back to the soil in the manure, while the humus needs of the soil would be amply provided for in the indigestible fibre and the starches and other undigested food compounds. In other words, not only would a person get food value of the alfalfa as feed for his stock, but he would have nearly as much fertilizing elements as was in the alfalfa at the start, and it might be added, the material would be in much more acceptable form to the soil than in the form of wilted alfalfa stalks plowed under. Inasmuch as the proposition was to cut and haul the alfalfa to the orchard, it can be seen that there would not be the charge in labor against the feeding that there would be in feeding a cover crop that might be plowed under where grown.

It might also be fair to reverse the proposition and say that a stockman who had a surplus of manure from alfalfa hay might make better use of that manure by putting it on orchard or grain land, rather than alfalfa: that the ideal operation, in theory, is in favor of mixed farming.

GANG DIBBLE A LABOR SAVER.

To the Editor: Following is the description of an invention of mine for planting cuttings such as ivy, lilac, philadelphus, in fact anything that can be done with a dibble, and more especially where large quantities are to be planted. For instance, I planted with a gang of men, 54,000 plants, and each man averaged 818 cuttings a day. This included making the cuttings and planting with a dibble. This work was too slow for me, so I set my mind to work and the result was a gang dibble. I was planting a border nine feet wide and about 2600 feet long, the object in view being to grow English ivy to displace blue grass, English rye, or white clover, etc., or in other words to make an English ivy lawn, the 54,000 going in at a cost of about one-third cent apiece.

On the second job I figured I planted 216,480 cuttings. This job I did with my gang dibble, using two of them and working two men on each dibble. The result was each man averaged 2,255 cuttings a day, making and planting costing about one-eighth of a cent apiece, showing the difference between the single dibble and the gang dibble. The single dibble used is an iron flattened out to about 2½ in. wide and about 12 in. long. The



gang dibble is made by using a piece of 2 by 2-inch pine lumber, 9 feet long, with 6 dibbles attached, having a handle near each end, and at a comfortable height for a man to handle it with ease, and two men with this gang dibble can make enough holes to keep several men busy putting the cuttings in the holes, and neither the dibble men nor the planters lose any time getting the kinks out of their backs. The result is everybody is working right along.

Sunol.

HENRY BREEN.

[From the above illustration it can be seen that the dibble is carried forward broadside, a man on either end. The two points projecting backward are to reach the row just left to make the rows evenly spaced. The projections at the side reach to the edge of the row made the former trip down the field. The teeth are about 8 inches long and 1½ inches wide.—EDITOR.]

Elimination of Frosted Fruit.

[Written for the PACIFIC RURAL PRESS by
J. E. ADAMSON, Pomona.]

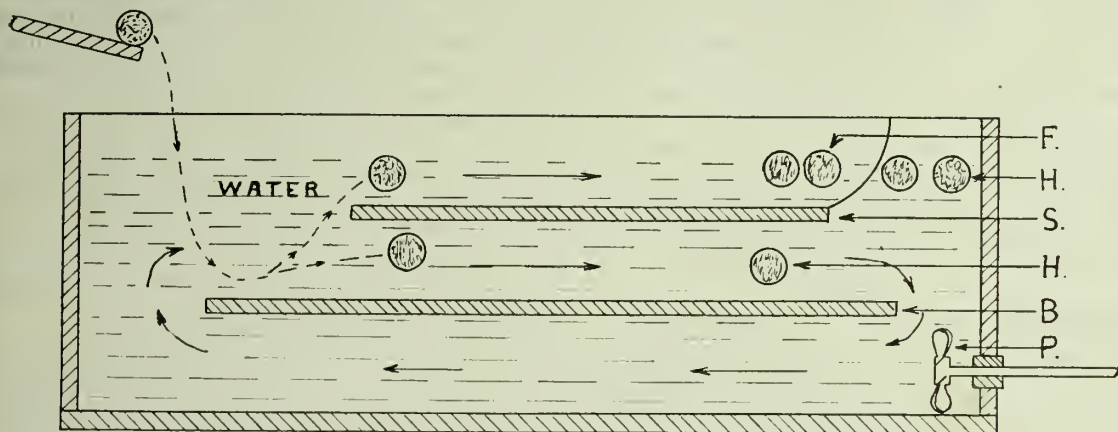
This has always been a troublesome problem in the citrus industry for the reason that there is very little difference in the outside appearance of the frosted and the unfrosted fruit. Sometimes the frosted fruit has a better color and a brighter skin, so that even the expert would be in doubt, and the novice completely at sea.

The only way is to weigh the individual fruit in some way which will make due allowance for the variation in size of the fruits. This brings the matter at once to the comparison of volume and weight in some way that will be accurate and at the same time quick enough to be commercially profitable.

The idea of immersing the fruit in a liquid of

to handle a large quantity of fruit, but each orange is dropped in a runway of its own so that one does not in any way interfere with another, as the drop must be clean and uniform, so that the grade will be constant. The rate of flow of the water is also a factor in the grading and must be uniform from one side of the machine to the other. The adjustments are all made with the screens, as that is found to be simple and easy. If good fruit shows among the culls the screens are raised, and if poor fruit is found where it should not be, there is a corresponding change in the screens in the opposite direction until the right point is reached.

The machines have been built by several packing-house machinery people and some have been built by the fruit people themselves. They have



Frosted Fruit Separator

F—Frosted fruit. H—Heavy fruit. S—Screen. B—False bottom. P—Propeller.

such specific gravity that the good fruit would sink and the frosted fruit float, found expression in the adoption of the "alcohol method," which worked very well so long as the alcohol could be kept at the right density, but the supply of moisture from the skin of the fruit soon changed this and the system turned out to be expensive.

Last year there was tried kerosene and other light petroleum products with good success so far as the separation was concerned, but there was a disastrous decay set in due to some action of the oil on the rind of the fruit.

At last, however, there has appeared a system that seems to have all the good features of the other methods and few of the evils. It is known as the "water method," and is at once simple and effective.

It was discovered by one of the progressive orchardists of the south, Frank Chase of Riverside, and was patented by him for the good of the people in such a way that no monopoly could be maintained to the detriment of the industry as a whole. This generous act will rank among the best of the magnanimous things for which the citrus men are noted. It is doubtful if anywhere is to be found such freedom from jealousy as is to be found in the way citrus men of California reciprocate in the matter of methods, all trying to help the industry as a whole.

As water is itself of such density that oranges will readily float, it was necessary to adopt some modification of the methods used in the alcohol and oil efforts, which consisted simply of immersion in a suitable vat, skimming off the floaters and lifting out the sinkers.

A glance at the diagram will help to a good understanding of the method. Dropping the fruit into water, it will soon be realized that the heavy fruit will go a little deeper and not rise quite so rapidly as the frosted fruit. Setting the water in motion, the good fruit which stays down longest will be carried farther along than the light fruit which rises sooner. Interposing a screen at the right height will catch all the fruit that does not rise before it reaches the screen, and can be led by the force of the current to a pocket, from which it can be taken into boxes for sorting and packing. The frosted fruit which rises to the surface too soon to be caught by the screen, is led to another pocket and disposed of as culls.

In practice the machines are made wide enough

been of most use in the frost-fighting districts, where there are considerable quantities of good fruit with a slight mixture of frozen fruit which can by this means be eliminated and not spoil the value of the frost-fighting work.

STARTING A NEW CHERRY DISTRICT.

(Continued From Page 537.)

That combination is not easy to get, either, which is one reason why cherry growing is not practiced more extensively.

Further belief in the suitability to this crop came from the fact that around the ranch-houses in similar locations cherry trees, with other fruits, had long been grown and had done excellently.

Results have verified this reasoning, and the four-year-old orchards for thrift and uniformity of growth are hard to beat. There was a fair setting of fruit on many trees the middle of April when the writer visited the place, even though the trees were so young, and enough growth had been made to give an abundance of fruit spurs for 1914 and an excellent crop at that time, the weather permitting. The trunks of the black Tartarians frequently measured six inches through and were, at a guess, 12 to 15 feet high.

It might also be said that apparently reports of frost injury have been overstated, for although the yield this year will be cut off a good deal by the frost, there was yet a very fair setting of fruit, and there is no special freedom from frost here, although a fall of about seven feet to the mile gives a moderate air drainage.

Most of the land where cherries are grown has been sold by Mr. Hewitt, although he is caring for two of the largest orchards, including the oldest plantings.

Varieties and Uses.—Varieties are more or less of an experiment as yet. On one orchard the rows alternate with Royal Ann, Bing and Black Tartarian, with the Royal Ann rather behind in favor. The cherries that are raised will be very largely shipped, and the black cherries are thought to be best, so that probably the Royal Anns will be worked over after the varieties have been well tried.

In another orchard across the creek there is a heavy planting of early varieties with others. Besides the three varieties, there are the Chapman, Burbank's Early Purple, Early Purple Guinge, Lamberts, and Mazel. The district is

about two weeks later than the Vaca valley, and will get off the latest cherries at about the same time, with the earliest apricots that come into the market. Mr. Hewitt is caring for 125 acres of cherries of A. B. Haslacher and 30 acres of Messrs. Pickle and Winehell. There are in the care of the owners enough other acreage to bring the total up over 200 acres and room for lots more.

This district is opposite the entrance to the big valley, and the temperature is moderated by bay influences. Likewise, it is off the direct path of the winds that turn southward from the entrance and sweep over the San Joaquin valley. The edge of these currents, however, goes over the land, but the sweep of the wind is not sufficiently strong to disturb trees or fruit.

Being in the big valley and yet near the opening, the likelihood of rains at ripening time is less than it is in the coast counties, especially the north of bay counties. Also, the air is drier and the cherry slug, for this reason, has never done injury to the trees. Likewise, the hump-backed caterpillar comes so late that it does little injury, and these two serious cherry pests are of only minor importance.

Care.—The trees are not irrigated. Some young trees that have not established their root systems well will be irrigated from wagons this year and other years of small rainfall, but the sub-irrigation looks after the trees whose roots are down into the ground. Catch crops have been grown between the rows of young peach orchard, but the trees have not made nearly the growth of trees given clean cultivation, and clean cultivation has been practiced on the cherries right along.

Unless showers occur to start the weeds or form a crust, cultivation is not practiced during the summer, and the rainfall in the winter is permitted to bring up all the weeds and grass it cares to. In February or March, or as the season permits, Mr. Hewitt disks this growth in. A plow has not been used since the trees were planted.

The disk is run along the rows and across them to get the ground well loosened and the grass under, and the harrow is then put on. Then the orchard is disked and cross-disked diagonally, and harrowed again. Then the disk is run one way along the row and the orchard is dragged to smooth down and pack the soil. If rains start the weeds or form a crust, a weed-cutter is put on which fluffs up the surface and destroys the capillary tubes that would draw the water from the soil and send it out into the atmosphere. This cultivation is about five inches deep and is very satisfactory for the type of soil.

Summary.—The lesson of it all comes very largely in the fact that it was only the investigation of the soil that changed the land from a grain field to an orchard, or rather many orchards, that the essential thing is to find out what is below. As far as cherries are concerned, it is a demonstration of the fact that cherry growing has not reached its limit. Here was a fine location overlooked. There are many places with as favorable a climate, there are lots of stream beds where good soil and good drainage ought to go hand in hand with good subirrigation. A grower ought to know what varieties will fit into the climate, soil and markets. "Be sure you're right, then go head" applies to farming, and the basic thing is to be right.

POLLINATION OF ALMONDS.

To the Editor: I have 3½ acres set out to Drake's Seedling almonds. Some people have told me that I must plant some hardshell variety between them, otherwise they will not bear. I would like to have your advice on this matter.—Subscriber, Red Bluff.

It is not necessary to plant hardshell almonds near Drake's Seedling trees in order to have them bear. Some varieties of almonds will set few nuts unless they are cross-pollinated, but these are the papershell varieties, as a rule—the Nonpareil, IXL, and Ne Plus Ultra—and for these the Drake's Seedling or Texas Prolific is planted as a pollinizer. If you plant other nuts it might be advisable to plant the first and last named and possibly some of the other two; that is, if you are going to have a large acreage. The highest-priced nut of all is the Nonpareil, and it is also a good bearer when in a good location and planted with Drakes or Texas Prolific.

Live Stock on the Bassett Ranch

[Written for the PACIFIC RURAL PRESS by
J. C. LOOMIS.]

To anyone interested in good stock, a visit to M. Bassett's breeding establishment, located near Hanford, is a rare treat, and one not often enjoyed by most. Mr. Bassett has for some 20 years been raising Poland-China hogs and good grade draft horses, and for the benefit of those not already familiar with this ranch and the methods carried on there, we are giving a brief review of them.

On the home ranch there are 160 acres of fine land, a great deal of which is in trees and vines. Aside from this, Mr. Bassett owns considerable other land in the county, but his home ranch is the place to see his best stock.

As before stated, Mr. Bassett started with his Poland-Chinas, about twenty years ago, but did not go into the selling of pure-bred breeders until about ten or twelve years ago. Since that time he has been a constant advertiser and exhibitor at the State Fair, and for this reason is so well known among those interested in swine that he needs no introduction. His stock have always taken a very large proportion of the prizes in their respective classes, and when taken to the Seattle Exposition captured all of the firsts with the exception of two boar classes. At that time he exhibited against Eastern as well as Western breeders, so that his name is known in the East also.

At the time of our visit to his ranch there were 30 head of brood sows on the place and 5 boars, and in talking about boars these 5 fellows appear to be the highest type possible of attainment. On this ranch one finds nothing but good-looking hogs, so it is hard to pick out any individual stars.

Mr. Bassett's method of caring for this stock is quite as interesting as anything on the ranch, inasmuch as simplicity is concerned, for while having such exceptionally fine stock, no frills nor faucies are indulged in as to equipment.

The main hog lot is in an apricot orchard, this allowing a plentiful supply of shade and also producing fruit in goodly quantities. This is the only fruit tree that can overcome the hardship of no cultivation necessary for a hog lot that Mr. Bassett has found. In this orchard the service boars are kept fenced off in individual pens, and in this respect it is the policy to allow liberal-sized boar pens to give the boars ample room for exercise. Alfalfa and foptail are seeded all over the orchard, giving the necessary roughage. Running water goes through the different pens, and with some corn twice a day, no other care is given the hogs. Next to this orchard is an open field where the young are kept. This also is supplied with running water. Most of the brood sows are kept on pasture by themselves some distance from the house, but in every available corner where running water and shade is to be had brood sows are also kept. While good common care is given all of the stock, no protection is given other than small board roofs here and there for the brood sows and service boars, all others being exposed to the weather at all times except for a short time before fitting for the Fairs, when they are taken up and given better care.

As the feeding question is usually one of the most important features of swine-growing, it might be well to state that these hogs are fed on alfalfa pasture and corn at this time of the year, but during the fall and winter are given a liberal supply of pumpkins, this being considered by Mr. Bassett one of the finest roughages for growing pigs, especially the crooked-neck variety. When fitting for the Fairs, ground wheat has been found superior to anything else for this hot climate, as it is not nearly so heating as corn, and they do not consume nearly as much to make the same weight as they would of other grains.

The idea that hogs cannot be grown profitably without skim-milk does not hold good here, as no slop or milk is fed except what little waste there is from the house.

In fact, Mr. Bassett considers that for breeding hogs they are better off without any milk and thinks the practice of giving only skim-milk and alfalfa a poor one, but with the addition of

some grain would be all right. This year he brought a fine young boar from the East which he bought at the Chicago International.

As before mentioned, Mr. Bassett has also been a pioneer in the horse business and several times his grade mares have captured first prizes at the State Fair over pure-breds, but in this line he is also branching out, and from now on will build up the pure-bred horse as well as hogs.

While at the International this year, he purchased two imported Percheron mares and a registered Percheron stallion as the foundation for this breeding ranch. These young mares are three-year-olds and as fine specimens of the draft horse as could be desired, and are said to be the finest pair of mares ever brought to the Coast.

While Mr. Bassett grants that the auto-truck has its proper place in commercial lines, he also thinks the horse necessary, but emphasizes the fact that the demand for better horses is more constant and for this reason considers the pure-bred horse business a permanent one.

With the success already obtained with pure-bred hogs and grade horses, the chances are greatly in favor of a successful pure-bred horse breeding establishment on this ranch as well, and, like all pioneers, Mr. Bassett should be given a lot of credit for his endeavor along these lines.

CHOPPED ALFALFA vs. ALFALFA HAY.

The value of feeding chopped alfalfa to dairy stock seems to be pretty well established among dairymen in California, but like any new idea, it takes time to be universally practised.

During the past winter an experiment was carried on in Tulare county by W. A. Jenkins in order to find out just what the benefits of chopped alfalfa were over ordinary alfalfa hay which should be valuable to other dairymen. In these tests the hay was weighed in gross lots and fed to the same stock, making all conditions practically the same. At first 21,760 pounds of alfalfa hay was purchased and fed to 26 head of milk cows and a number of dry stock and calves in the ordinary manner of hay feeding. With this amount the above number were kept for 19 days, or at the rate of 1145 pounds per day. After deducting 100 pounds per day, the amount fed to dry stock and calves, he found that the 26 milk cows consumed 1045 pounds per day or 40 pounds per day per cow.

The cows kept were mostly grade Jerscys and were given the same amount as if no account were being kept of the hay. At a valuation of \$15 per ton (the usual value of hay this winter), the 40 pounds had a commercial value of 30 cents; or it might be said that that was the cost of feeding one cow for one day on alfalfa hay.

After 15,800 pounds of the above was fed, alfalfa hay was fed, but this time the hay was run through an ensilage cutter. From this lot the same stock was fed 21 days, which figured out, after allowing for dry stock and calves, made about 637 pounds per day for the herd. This divided by 26 gives about 24 pounds per cow per day, which at a valuation of \$15 per ton makes the cost 18 cents per cow per day. Added to this, however, is the cost of cutting, and with this the cost varies according to the size of the cutter used. Mr. Jenkins used a 12-inch cutter and distillate engine for power, and figures the following cost as very nominal: Three men at 20 cents per hour, 60 cents; cost of distillate for engine, 10 cents; total cost, 70 cents.

With this sized machine 1½ tons of hay can be chopped in an hour's time, so that it can readily be seen that the extra cost of chopping the 24 pounds is less than 1 cent.

In summing up, one finds from the above that with hay selling for \$15 per ton, Mr. Jenkins saved the difference between 30 cents per cow per day for straight hay and 19 cents per cow per day for chopped hay, which was 11 cents. For the 26 head it saved \$2.86, and for a month it would have saved \$85.80.

It should be stated that the chopped hay was usually chopped about 12 hours before feeding and thoroughly wet down with water. In this manner it supplied moisture to the stock during the cold weather when it is hard to get an ani-

mal to consume the usual amount of water.

As no difference in butter-fat was noticeable, it would seem that chopping alfalfa is a very profitable practice for the alfalfa dairyman.

THE GREAT BACON HOG.

Because the Tamworths are a new breed in California, one does not hear as much about them as they do of other breeds; however, judging from the big strides they have made in such a short time it seems as though their future should be bright.

We recently visited one of the largest herds of this breed in the State at the Kennedy Bros. ranch near Amsterdam, Merced county, and after such a visit one is apt to marvel at the immense size of this breed, and when they are called the bacon hog they are rightly named, for it is hard to find anything in "pigdom" which compares to the long sides found on this hog.

That the name "bacon hog" is no misnomer is shown from the fact that the Western Meat company offers at all times a premium on this hog of ¼ cent upward, varying according to the general price of pork at the San Francisco market.

A great many, in looking at this hog, immediately exclaim: "That looks like a wild hog," and this is in truth the claim, for they are simply a wild English hog domesticated, and this accounts for the long rangy body and long snout.

The advantages claimed are large litters and quick growth into good sized animals, and judging from the size of the litters on the Kennedy ranch, they are strong on that point.

Of course they are not as good a lard hog as some other breeds, and this is not claimed for them, but, as before stated, are long on bacon.

Judging from the amount of bacon shipped here from the East every year, and the continued cry for better bacon hogs by the packers here, it would seem that this hog has come to stay.

One peculiar point, considering they are but wild hogs tamed, is the fact that they make gentle mothers and are easily handled, their only bad traits being their power of breaking over fences, and rooting.

While the Kennedy Bros. have only been in the breeding business two years they have a herd of 125 head, all pure-breds at present. There are 15 brood sows on the ranch and so far little difficulty has been encountered in disposing of the offspring.

One feature they have found profitable which might help other breeders, is their practice of allowing other ranches in the district to breed other breeds to their boars free of charge. In this way the benefits can be seen on the rancher's own place, and eventually he buys a pure-bred boar to improve his herd.

SALT FOR SHEEP.

There is no country in the world where sheep-raising is such an important industry as in Australia. Likewise, Australian climatic conditions in many ways closely resemble those of much of California, and anything good on sheep-raising there is worth reading here. The following, taken from the Adelaide Observer, gives some good suggestions on the use of salt.

There are many grass stations, especially in the southeast, where sheep have to be provided with salt, owing to a marked deficiency of that necessary commodity in the pasture. The northern pastoralist is not troubled, as nature has generously provided him with an abundant variety of edible bushes and herbage rich in salt.

The artificial feeding of salt to sheep has been regarded by many as being the outcome of modern progress and modern appreciation of scientific teaching. Not a bit of it; the custom is almost as old as our knowledge of sheep, and I recently came across some interesting information on the subject in an old magazine.

Spain gave us our merino, and it is but fair to assume that in the past Spanish knowledge of sheep husbandry was in advance of that obtainable elsewhere. The first thing which the shepherd in Spain used to do, when his flocks were brought in from their summer pastures, was to give them as much salt as they could eat. Every owner allowed 2500 pounds of salt to each thousand sheep, and this amount would be consumed by them in about five months.

The Eradication of Morning Glory.

To the Editor: I note your explanation in your issue of April 26. to Mr. J. L. St. Markus, for a remedy to kill morning glory. Would you kindly republish that article of November 25, 1911, from the PACIFIC RURAL PRESS, as many sections in California today are so infested with morning glory that growers are willing to do almost anything to have the same eradicated. I am of the opinion that copperas, (sulphate of iron), a strong solution, will kill the morning glory, and only makes the land barren for three or four months.—E. P. P., Stockton.

If such an application of copperas has been tried and is a success we would be glad to have a report on it. Salt and some other materials have been used to destroy small patches of this weed, and kerosene especially is effective, but all applications appear to do as much harm as good, except on limited areas, and the standard method is to use a weed cutter every few days, say every fifth day or once a week, starving out the plant by cutting off the shoots that are formed before they can reach the light. This method has the advantage of being absolutely effective, but must be vigorously followed, and the chance never given for green to form by the shoots reaching sunlight. Details of some work in eradication can be secured from a University of California circular, sent free on request to the University at Berkeley.

From this, as in the issue in November, 1911, we take some of the important points.

The weed is a perennial with strong, far-reaching roots. The smallest piece of root is capable of growing and originating a new plant. Ordinary cultivation has no apparent effect except to make it grow more vigorously. Very thorough and frequent cultivation with a good weed-cutter throughout the growing season will keep it down so that there is no appreciable harm to the crop. With vines and small crops, however, this must be supplemented by a considerable amount of hand hoeing.

WHY ORDINARY CULTIVATION FAILS TO KILL THE PLANT.—There are two causes for these failures. The first is that when the morning glory appears above the surface it produces normal green leaves very rapidly. These leaves commence the manufacture of starch immediately, and quickly replenish the store of reserve material in the upper roots. The draft on the lower roots is thus stopped, and they remain well nourished and healthy. The only way to exhaust the roots, therefore, is to cut off the new growth before it appears above the surface. The second cause is that, owing to the voluminous root system of the morning glory, the amount of reserve starch is very large. New growth will continue so long as any available starch remains and it takes a large number of renewals of growth and removals of material by cutting before the whole root system is exhausted.

As an indication of the amount of starch to be drawn upon it can be said that at the University Farm holes were dug over land covered by the morning glory and roots found to a depth of 14 feet. They were very plentiful to six and seven feet and to this depth contained from 2½ to 5 tons of matter, the food in which would have to be practically exhausted before further shoots would cease to come. By running the weed-cutter every five days from the first of June until fall over a badly infested piece 10 acres in extent only half a dozen shoots were able to make their way to the surface the following spring. In an adjoining 10 acre piece given good ordinary

cultivation the morning glory came up as abundantly as ever.

CONCLUSIONS.—These are the conclusions reached in the publication:

1. The weed-cutter must be of such a form that no part of the ground is missed. The form used was a straight knife 4 inches wide and 4½ feet long. This was attached to a riding cultivator drawn by two horses. It was attached perpendicularly to the direction taken by the cultivator. By overlapping about 6 inches on each passage through the piece, it was easy, with steady horses, to avoid missing any spot. On rough land this would be more difficult; where vines, trees, or other crops are growing, impossible.

2. Every weed cutting should take place before any shoots appear above the surface. The smallest growth of green leaves commences to renew the starch, and therefore diminishes the exhaustion of the starch supply of the roots, which is the object of the cutting. Any considerable growth of leaves replenishes the starch supply completely.

3. The weed cutting should continue until the coolness of late autumn prevents the growth of the weed. A growth in autumn would probably furnish partially exhausted roots with sufficient food materials to preserve them during the winter and to promote a new growth the following spring. How early in the season it is necessary to commence thorough weed cutting was not determined by the experiment. June 1st, at Davis, after the morning glory had already made a vigorous growth, is evidently not too late.

4. The depth at which the weed knife should be run for the most economical work is another point which was not determined. In the experiment, the depth did not average more than 3 inches. By running the knife deeper, say 5 to 6 inches, it is probable that the time between cuttings could be lengthened and the number of cuttings diminished without any inferiority in the results.

COST OF THE OPERATION.—The cost is easily estimated from the above data. From June 1st to November 1st is 153 days, which represents 30 weed cuttings. The 10 acres treated required 2 horses and 1 man one day for each weed cutting, so that the total work required 30 days, which, at \$3 per day for man and team, represents \$90, or \$9 per acre.

Wherever the morning glory can be exterminated in a piece of land for a cost not exceeding \$10 per acre, it is undoubtedly economical, and it would, in all such cases, pay to delay the planting of a vineyard merely to keep the morning glory down sufficiently to prevent injury to the vines and without hope of extermination.

If it is true that growers will do anything to eradicate the pest the above will show the way. It is of moderate expense and very feasible, but requires more than just work, it requires strict and careful attention.

The legislative assembly at Sacramento this week passed the Carey bill, which will be placed before the voters at the next election as a constitutional amendment, the proposition to create a State fruit commission, this commission to have supervision of all fruit packing, that it will be standard sizes, quality and pack, and to prevent the introduction of inferior fruit.

California vegetable growing is on a big scale. From one place this season 22 carloads of rhubarb and from another 34 carloads of fresh asparagus went East. One association cannery packed 4,500,000 pounds of berries in 1912.—Consular Report.

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SAN FRANCISCO



How Shall We Co-operate?

The difficulty of financing growers' marketing organizations probably offers a greater problem than any other thing, except possibly those difficulties arising from the shortcomings of human nature. Money is needed to build or lease packing houses, to secure equipment, to hire a capable manager, to pay various wages and the other expenses that are necessary in building up a business. Let the money be provided by any man or set of men, and the question at once arises, How much shall the investors have to say about the management of the organization, and how much the owners of the produce to be handled? How much interest shall that money be permitted to earn, and how shall it be earned, etc.?

This is the rock that has split many a promising growers' organization, and examples could be quoted in California today of organizations that are flourishing to all appearances, financed by the growers, but earning so large dividends for the men that put up the money in the first place that the shippers of farm produce feel that a greater advantage is with the owners than with the shippers. Other former growers' organizations are no longer growers' organizations, but simply private concerns through the stock of the original investors coming into the hands of one man or one set of men. That is just an illustration of the difficulties arising in the method of financing a growers' organization.

Several weeks ago, a description of the methods of the Farmers' Union appeared in these columns. Although the method of financing the local and State marketing unions and their direction, was stated to be not fully as perfect in theory as the method of financing some other organizations, the method of control is such as to prevent important evils from developing that sometimes develop in growers' organizations, such as those described above, and a suggestion that another method might be better is hardly even a criticism.

Following that article a letter requesting a little more light on those suggestions has been received from William McNaught, president of the California division of the Farmers' Educational and Co-operative Union, which we will take the liberty of quoting in part and answering in these columns. Mr. McNaught writes:

"On behalf of the Farmers' Union, I thank you very much for what you wrote and published about our organization. I think you handled the story very well, indeed. I am particularly pleased that you so clearly brought out those two impor-

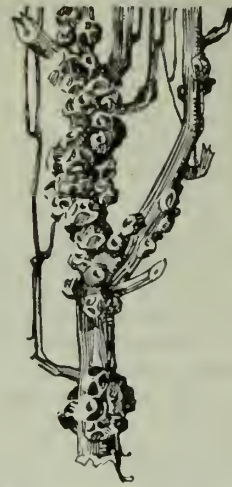
tant thoughts in regard to the Union, namely, that it ranks so high as an ideal of co-operation, and that it is not just a dream of what ought to be, but is working out well in actual practice.

"Your criticisms as to our local packing plants not being financed and managed on a so thoroughly co-operative plan as are some other co-operative associations in the State, we must take in kindly spirit and try some day to profit by them. Your calling attention to this will set us to thinking of it more, and if we note any ill effects of our system, we will change it. Some day I would like to have a talk with you—to get clearly in my mind just what are the imperfections you refer to. I suppose one of them is that interest is allowed on the money put up for the original investment in the plant. I do not see how we could well avoid that at the start of the enterprise; but we might gradually eliminate that weakness, if it is one, by refunding the original subscriptions out of the savings made in our co-operative packing. Thereafter, the fruit itself could finance itself; and the investment in the plant would, in a way, be everybody's and nobody's.

"Another item which you seem to indicate as a weakness is that in the management of the plant the subscribers to its building have control, although they are allowed only one vote each. The California Cured Fruit Exchange votes according to tonnage. Do you mean that you think their plan is better than ours? We could gradually change to that, too. If in our study and experience we found it good to do so. I am inclined to believe, though, that we have a class of co-operators with us who would think the vote by tonnage less truly democratic than the way we have now. For they might argue, or feel, that this tonnage vote again puts most of the power into the hands of a few of the richest men, just as it is likely to happen in regular joint stock companies; and this is one of the very things co-operation seeks to avoid, and to prevent which our non-profit co-operative law is often preferred as a method of farmers' organizations. Vote by tonnage would quickly put the control of the institution in the hands of the few rich, just as in a joint stock company. On that plan we would have one man here who could outvote the united vote of some twenty-five small ranchers, who might all think they should, democratically, have an equal voting power with the rich man in the control of their co-operative plant.

There is much to be said on both sides of this, even as in stock company versus non-profit, for in a case of a vote to set the selling price, or to choose a sales manager, it would seem but justice and business caution for the vote to be by tonnage. It is conceivable that ten men with two tons each might vote to set the price of a one-man crop of two hundred tons at an absurdly low price, or else hold them ruinously high and too long; and the ten might do it for selfish, silly, or ignorant reasons. But these may be the reasonable risks of co-operation.

"Some time I would like to have you write me on these points. I wish to consider all adverse criticism, as well as all praise, that comes to us, and by means of it try to develop closer and closer to perfection in our co-operation. If you can find time to write me, and care enough for the cause of co-operation to take the pains, I wish you to assist me to get it clearly before our members what defects you refer to when you write of our systems of organization in some unions being much inferior to the system



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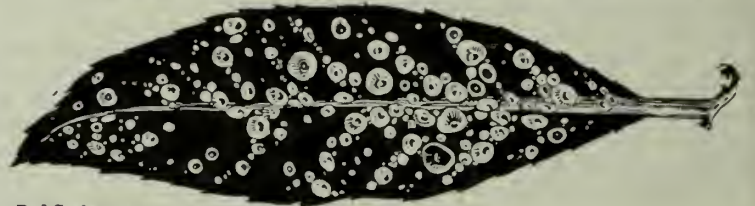
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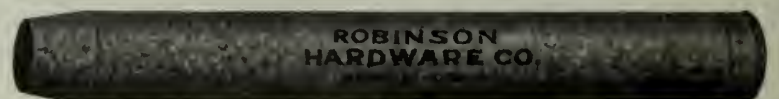
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of organization used in the California Cured Fruit Exchange. Do you mean that we should allow no interest, and that we should vote by tonnage, and not one vote to the man as now? And are there some other advisable changes you could briefly mention? I desire to get at the viewpoint of an impartial observer who has examined both systems, as you have.

"In regard to the paragraph where you mention our conception of union as not stopping at a single crop or the products of a single district; that is our ultimate aim; but remember that we would plan, along with this, to specialize by having expert management for each line of products. Otherwise the very extent of our plan might be a matter of adverse criticism, as a scheme made unwieldy by its bigness. Our plan would be to specialize, as well as to universalize in union."

COMMENTS BY THE ASSOCIATE EDITOR.

Although it might seem that financing an organization that needed lots of money without having any money, or very little, was like making bricks without straw, yet the thing is done and the California Fruit Growers' Exchange, the citrus-marketing organization, the greatest institution of its kind in the world, was built on just that plant. In the letter above, the Cured Fruit Exchange is mentioned because it was described in detail two months ago, in the issue of February 1.

The method of organizing may be on about this plan. The body of growers who wish to form the local association meet, adopt a constitution, and organize, electing directors and other officers, making the organization responsible in law. The necessary funds at the start come from initiation fees, dues, etc., perhaps five or ten dollars per member, or more.

To get the funds to go farther, to obtain a packing-house and hire necessary salaried men, etc., the directors are authorized to borrow money. They do this on their personal note, though the association is legally responsible for the money also. The packing-house, if built or purchased, may be and is used as partial security for these notes. The money is thus secured, and the essential thing to be remembered is that this money is borrowed and pays definite interest, leaving any extra money earned the property of the association; it gives the members, not the banks or investors, the direction of the business.

This expense is all made up in the earnings of the association, for the same funds are needed to pay salaries, hire packing-houses, etc., no matter who sells the fruit—association, private individual, large company, or some other institution.

This borrowed money is finally repaid by the earnings of the association. The citrus association at the start may charge, say, three cents a box over expenses to members as a sinking fund. That is not noticed, as an efficient marketing organization will net far more than three cents a box over what might be obtained by selling to a packer, and two growers shipping an equal quantity of fruit through two different packers would easily have three cents a box difference in their returns. In a few years, by this method, principal and interest are paid, and the only thing left is to attend to operating expenses. Assessments can thus be laid on tons of cured fruit, sacks of nuts, etc., depending on what is handled.

Operating expenses are also conducted on credit. An assessment is made at the beginning of the year on the basis of the crop expected until returns for the crop come in. After the season is completed, any excess—and there always

should be an excess through having a margin for emergencies, is divided pro rata among members in proportion to fruit handled. Or there may be a surplus carried over from one crop to finance the next. Differences in detail are not essential.

The one basic principle in the minds of the best authorities, as judged by the practice of the thing, is that credit should start the organization, finance the crop movement, and that the goods to be handled and not shares of stock or other money be the governing factor.

AN ACREAGE BASIS—Or money can be invested at the start to save all this bother, and some organizations are financed on that basis. In this way a share of stock is issued for every acre represented. The money needed is thus obtained at once, and yet there is every incentive to handle the fruit properly. No one cares which earns the money—the fruit or the shares of stock—it comes to about the same thing. It only should be provided that stock accompany the land absolutely, that new members take stock from the treasury in proportion to acreage, that retiring members sell again their stock to the association. In certain ways this is the fairest method that could be devised, as each one has a property right equal to his investment. The one shortcoming comes in the fact that all acres do not bear alike, and a better way is to grant shares in proportion to the crop, varying same, perhaps, as the crops vary from year to year.


This stock system is theoretically fairer than to allow new members to come into an association which they have not labored to build up, as is permitted in citrus associations in the Fruit Growers' Exchange, the new members having an equal right with growers of equal-sized crops of fruit who have paid out their two and three cents a box for fruit until the debts were cleared. Naturally, central exchanges are financed on a similar plan by the associations that make them up.

Space is too short to go into detail, but the above will indicate in general outline how some of our best great growers' selling organizations have been built up.

MANAGEMENT.—In regard to the control of an organization, experience indicates that voting should be done in proportion to the crop, to the amount of goods handled. Democracy is far and away the best thing in government, but has even there lots of disadvantages. It has more disadvantages in a marketing proposition, though it has some advantages also. The business of an association is to sell goods, possibly to buy them also, and the best job of both is done when the man with most at stake has most to say.

In theory certainly, in practice doubly so, the big man on the farm should have most to say in growers' organizations. He evidently has much more business experience than the small man on account of his larger interests, and his larger interests are the best kind of an indication that he is a better business man than the small grower. Likewise, since it is money for the goods handled that counts, in serving his own interests he is best serving the smaller growers. Every man, every association, should have a share in direction in proportion to the interests involved. One of the reasons for the great success of all kinds of growers' organizations in southern California is that business men are behind it.

Of course, there are occasions where two or three big growers may form a clique and run things to their own interests, but as a general thing a democracy of produce rather than of men is the ideal system.



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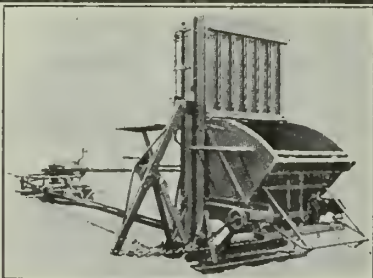
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Dry Farming in Nevada.

[Written for the PACIFIC RURAL PRESS by Professor E. A. HOWES.]

Opinion is divided as to the feasibility of dry farming in the State of Nevada. If we read some of the literature published on the subject and if we are prone to accept as gospel all that sounds well, we must perforce become converts to the dry farm of the future idea. If, on the other hand, we are accustomed to the use of three feet of water in irrigation, or if we come from lands where drainage is the big problem, we are very apt to decide off hand that the dry farm proposition in Nevada is naught but a delusion and a snare. It is just a little more than possible that the days to come will show us that, as usual, the truth lies between the two extremes.

The significance of the term "dry farming" is not generally grasped, because the significance lies in the application of the term rather than in its literal interpretation. We may as well acknowledge that there is really no such thing as dry farming, that moisture is ever essential to germination and development. When we speak of dry farming, we mean a process rendered necessary where available moisture is less than what we have been accustomed to use under ordinary agricultural conditions, where the region is called semi-arid; a process by which moisture is conserved, stored up against the day when it is needed to foster plant life.

The most important feature of dry farming is the prevention of evaporation and consequent loss of soil moisture and this may be a feature in agricultural methods in lands where the people would feel insulted if one accused them of practicing dry farming. Why does the farmer cultivate corn? Probably he tells you he cultivates to kill the weeds; possibly he will say also that he cultivates to loosen up the soil surface. Both statements may be quite justifiable, but, for the purpose of our subject we shall have reference to the latter claim, viz: that the farmer regularly cultivates to provide his field with a soil mulch, practically impervious to evaporation influences. The same principle underlies the work of him whom

we shall call the dry farmer; the difference is one of degree and method. The difference in degree is governed by the amount of local precipitation; there may be enough to justify the hope for a crop each year, or there may be sufficient only for alternate years. The difference in method is caused by difference in local facilities and in local opinion. Be that as it may; we are inclined to believe that some are attempting dry farming in Nevada without a proper understanding of the local conditions and without much more than a confused idea as to method. With this idea in mind we venture to offer a very few pertinent suggestions.

In Nevada it would be well to start out with the idea of cropping alternate years, of allowing half the farm to lie fallow each year, subject to sufficient surface cultivation to destroy the weeds and maintain the soil mulch. This sort of treatment renders feasible both spring and fall seeding and a word as to both of these methods might not be out of place. Spring seeding should, as a rule be as early as the ground can be worked, the weather may be rather cool, but we want to catch as much of the moisture as possible. Whether or not you believe in early spring seeding, you must believe in early cultivation, so be sure to cultivate as early as you can get on the ground. For fall seeding, aim to have all the seed in the ground before September 1. This gives time for a good fall growth and gives hope for winter frost resistance. Many failures are due to late seeding and consequent freezing of young and delicate plants. And, last but not least, be sure that you are sowing fall varieties. To some this warning may seem superfluous, but it is not out of place. Last fall one man, a Nevadan, sowed a large area to wheat; in response to a query by the writer as to whether it was fall wheat he had sown, he replied: "The Lord knows, I don't; I bought it in Sacramento." We laugh, but it is not all fun. This man had carefully prepared a large area as a seed bed and he was really interested, it is fair to suppose, in getting a good crop, and yet, like many others, he took a gambler's chance and sowed seed

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about which he knew nothing. There are definite fall varieties of wheat and definite spring varieties of wheat; it is true we may, by a sort of naturalization process, change one to the other, but the process would be slow in Nevada and no farmer of that State can afford time to experiment, because a little forethought renders it unnecessary. We are experimenting this year to determine the most suitable spring varieties, but there can be little doubt that the farmer who sows a good strain of Turkey Red winter wheat, sowing it early in the fall, is acting in his own good interests.

Careful experiments would lead us to believe that sowing to a depth of three inches gives best promise for good results. It is true that there may be more moisture further down, but there is less ventilation and warmth, two factors just as necessary as moisture. Moreover, a good rolling or packing of the soil above the seed just sown will tend to bring the required moisture upward. The rolling should be followed at once by the preparation of the surface mulch already mentioned; a light harrowing will serve the purpose. One need not fear to cultivate after the grain is up; some of the plants will be torn out, but the benefit to the remaining majority will more than counterbalance this loss.

Fall plowing will be found advisable, as it leaves the soil in a condition to absorb the late rains and the winter snow. Some advise subsoil packing for the fall, but it seems rather unnecessary. We find that the fall and winter precipitation attends to that part of the game. For spring ploughing the case is different and packing is essential. A dry farmer some distance north of Reno, ridges up in the fall, ploughing across the path of the prevailing winter winds and by this means he claims to hold snow that would otherwise drift away. He has a large

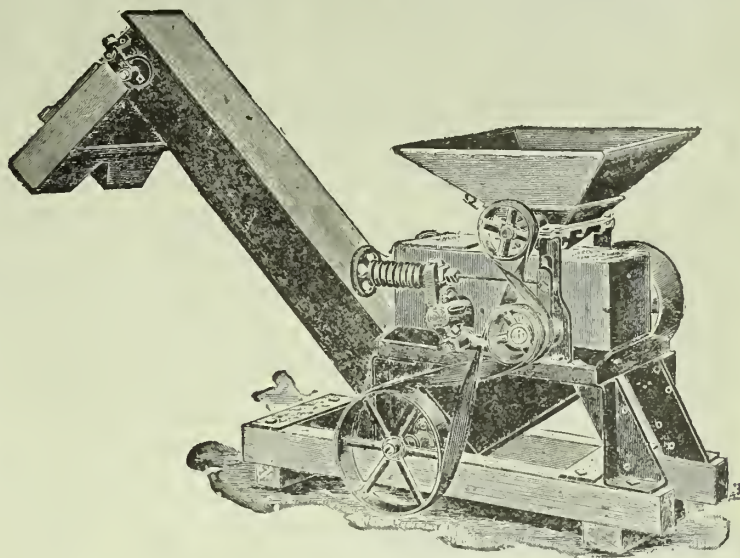
area which he devotes to the growth of alfalfa seed, and it is good seed, about the best we have examined at this station. On this area he practises what we have just outlined; he back-furrows every three feet, claiming to hold the snow and give the field all or more of the moisture it had a right to expect. This method calls for early spring cultivation to level the field and to hold the moisture.

One other thought—what the dry farmer fails to secure in quantity he makes up in quality. The quality of dry farm seed cannot be surpassed, because the conditions make for good clean seed production. We have spoken of dry farm alfalfa seed; we might continue at length to tell about the splendid dry farm wheat—spring and fall—barley, peas, flax, millet, etc., that have already been grown in Nevada with a precipitation between 12 and 15 inches. There can be no doubt that there are areas in Nevada where dry farming, intelligently practiced, can be carried on at a profit, but two things are essential to the beginner,—he must study the principles of dry farming, and he should visit farms now in operation; and in the second place he should know his locality and soil. There is room for a good work in the preparation of a chart for this State showing possible dry farm areas, and the preparation is no easy task. We believe there are areas where a sort of sub-irrigation goes on but their location lies in the future.

Dry farming in Nevada is a good proposition in which to make haste slowly. We do not say this because we doubt its practicability in certain areas, but because these areas are as yet extremely indefinite. Nevada cannot afford failures in dry farming, therefore, we advise caution. Any policy which induces haphazard settlement is short sighted under the most charitable analysis.

University of Nevada, Reno.

The "PEERLESS" BARLEY CRUSHER



From experience of practical and successful stock and cattle raisers, it has long since been learned that horses, cows, and other domestic animals fed on grain crushed by these machines, thrive much better and require, by far, less feed than when fed whole grain or that which has been ground by the ordinary process.

This tool is made in California; made in two sizes; requires but little power, and will make more money for you than any tool on your farm.

BENICIA IRON WORKS

Manufacturers

Factory: Benicia, Cal.

451 Brannan St., San Francisco, Cal.

HOLT CATERPILLAR GAS TRACTORS

IN THE HARVEST FIELD IT IS ONLY IN REMOTE CASES THAT YOU ARE ABLE TO USE A ROUND WHEEL TRACTOR. FOR THEIR SUCCESSFUL OPERATION THE GROUND MUST BE HARD AND LEVEL. THE HOLT CATERPILLAR WORKS IN ANY GROUND: SOFT, SANDY, HILLY OR OTHERWISE.

IT PROVIDES A STEADY, EVEN MOTION ALL DAY LONG, ABSOLUTELY DEPENDABLE AND EFFICIENT. IT ALLOWS YOU TO COVER A GREATER ACREAGE DAILY THAN ANY OTHER TRACTOR CAN POSSIBLY DO.

BUILT IN TWO SIZES---30 AND 60 H. P.

In the rest of your year's work, there is no tractor in the world which will give you as complete satisfaction and save you as much money as the Holt Caterpillar.

It is the railway locomotive applied to agriculture. It runs on its own steel track. It never sinks in the ground, it cannot slip, it climbs hills, runs on muddy roads and it does not pack the soil. All because it lays its own track down, then rolls over it.



Holt Caterpillar and Holt Combined Harvester

Most traction engine manufacturers today are claiming that their tractors are the "best on the market," but they base their claims on some improvement in the motor or transmission.

You have a right to expect that these points in construction will give you satisfaction. It is simply a matter of industry for any manufacturer to secure a good motor, etc.

The traction advantages are now and always has been the important consideration to you.

OUR 1913 MODELS ARE EQUIPPED WITH THE NEW DROP FORGED STEEL TRACK, WITH HIGH, OPEN SIDES, THROUGH WHICH ALL DIRT AND FOREIGN MATTER WHICH MIGHT FALL INTO THE TRACK, IS FORCED OUT.

The Holt Manufacturing Co.

STOCKTON, CALIFORNIA

COUPON

The Holt Manufacturing Company, Inc.
Stockton, Cal.

Please send me literature describing the Caterpillar Gas Tractor and showing pictures of the machine in operation.

Name

Address

I farm.....acres of land.

Beef Will be Lower.

Australian beef will make prices in California in the future, tariff or not, and with the tariff lacking, as it evidently will be in part at least before a very long time, the cut probably will be appreciable. The importation has begun with the tariff on and rather limited shipping facilities. In expectation of the tariff being largely reduced the shipping facilities are being largely built up. With the range in very bad shape, the season dry, the tariff on its last legs and the attack from the Pacific side all ready, the prospects are not as pleasant as they might be. Still, it may fairly be said that the market should remain quite satisfactory and the increase in population all over the world, and a decreasing world's supply of meat will mean that there will be no opportunity for permanently low prices on anything like low prices for meat.

Here is an outline of what is going on

LIVE OAK STOCK FARM

Six Miles N. W. from Petaluma, on the Petaluma and Sebastopol Road.

FRANK A. MECHAM, Prop.

Importer and Breeder of

Red Polled Cattle

Color Deep Red. Both Sexes for Sale.

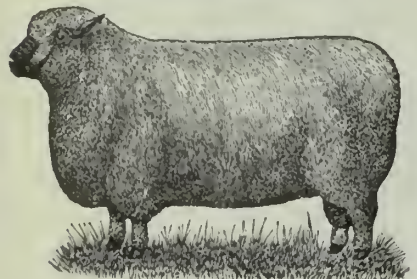
Address all communications PETALUMA SONOMA CO., CAL.



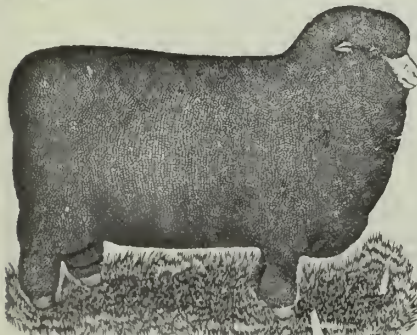
FRANK A. MECHAM

Importer and Breeder of Shropshire Sheep

They were all imported from England or bred direct from imported stock.



We have also bred American Merinos—Hornless Sheep—for 30 years. They are a large sheep with out wrinkles. Rams will produce 20 to 25 pounds of long, white wool yearly. Sheep of both sexes for sale.



FRANK A. MECHAM, Importer and Breeder

Shipping Points: PETALUMA and SANTA ROSA, SONOMA CO., CAL.

HOWARD CATTLE CO.

BREEDERS AND IMPORTERS

SHROPSHIRE SHEEP

SHORTHORN CATTLE

BERKSHIRE HOGS

641 MISSION STREET, SAN FRANCISCO

in Australia in expectation of the future. It is taken from the London Financial Times, but affects the Pacific Coast more than it does England and perhaps more than it does Australia.

The Union Steamship Co. has announced that an order has just been placed in England for the construction of four large refrigerator carriers, which are to be used for transporting frozen meats from Australia to San Francisco. The head of Schweitzer & Co., of San Francisco, which for years has always dealt independently, is now in Australia, and at Sydney has closed a contract for all of the available refrigerating space on the three liners of the Union company now operating to San Francisco. The steamship owners have secured guarantees from Schweitzer for large orders sufficient to test the refrigerating capacity of the present fleet of steamships. Schweitzer expects to bring to San Francisco millions of pounds of meats, especially mutton, which is to be supplied not only to local customers, but also to many other parts of California.

LARGE TRADE PLANNED.—Expecting at least a lowering of the present tariff on meats admitted into America, the Swift and Armour interests are now preparing for the construction of a huge slaughter house and freezing plant at Brisbane, Queensland, from which they will ship to the States thousands of frozen sheep, hogs, and cattle weekly. The American companies will also handle Australian butter, which at the present has been debarred from the American market through the presence of boric acid as a preservative. Apparently the acid will be omitted in future, and freezing alone depended on for preserving.

According to D. E. Quinn, now New South Wales Commissioner for the United States, hundreds of cattle breeders of Texas and other Southern and Western States have signified their intention of going to Northern Australia and going into the cattle business upon a bigger scale than ever before attempted. Already concessions have been arranged for the taking over of vast portions of more than 1,000,000 square miles of virgin territory, which is adapted to the raising of millions of sheep and cattle annually.

AUSTRALIAN GOVERNMENT ACTIVITY.—To prevent the possibility of the Meat Trust taking over the vast production of meats and butter of Australia, and charging the consumer high prices and paying the producer low prices, the Commonwealth is arranging to take charge of the slaughtering, freezing, and sale of these products upon a national scope, and keep prices upon an even basis.

The largest killing, freezing, and packing plant in the world will soon be in the course of construction at one of the seaports of Northern Australia, in which sheep, hogs, and cattle will be handled for the markets of the world. Mr. Quinn said further:

All of this is made possible on account of a recent ruling issued from Washington. The United States Department of Agriculture has decided that the inspection stamp placed upon meats by the inspectors of Australia may be admitted into the United States. The effect of this has proved quite satisfactory, for we have learned that the American meat eaters are ready and anxious to purchase the meats of Australia. Australia is feeding the American soldiers in the Philippines and Hawaii. There has been no cry of tainted meats from this supply, at that. The Government has a contract with the Oceanic Line to use its entire refrigerating space to transport meats from Sydney to Honolulu for the next 18 months.

America's Leading Horse Importers

Kansas City, Missouri

Oakland, California



We have just received at our stables in Oakland a large importation of prize winning Percherons. These stallions comprise nearly all of the leading winners at the recent French shows, every animal at maturity weighing much over a ton, and they are strictly stallions of the well known McLaughlin type. We import more, sell more, and therefore can sell cheaper than anybody else.

McLAUGHLIN BROS.

Stables: At Cor. 47th and Salem, in Emeryville, Oakland, Cal.

A. C. RUBY, Portland, Ore.

C. W. BOWERS, Sacramento.

RUBY & BOWERS

THE LARGEST HORSE IMPORTERS ON THE PACIFIC COAST



PERCHERON, BELGIAN, ENGLISH SHIRE, CLYDESDALE, HACKNEYS AND COACH STALLIONS AND MARES.

We sell more imported horses than all other firms on the Coast because we are direct importers and give a four-year guarantee which is good right at home. We have on hand at all times the largest and best lot of heavy draft stallions and mares, both American bred and imported, to be found any place in the West. If you are in the market for a high-class stallion or mare, don't fail to give us a call, as we can sell you more genuine horse for the money than any other importer in the business.

Address:

RUBY & BOWERS, Davis, Cal.

We Have Imported More Horses Than Any Other Firm in the United States During the Last Year.

References: Am. Natl. Bank, Pendleton, Ore. Merchants Natl. Bank, Portland, Ore. First State Savings Bank, Marcellus, Mich. Bank of Yoio, Davis, Cal.



1st Prize Ram Lamb, Omaha, 1911

SAN RAMON SHROPSHIRE FLOCK

Purebred and Registered Rams and Ewes For Sale. Individual or Carload Lots.

PRIZES WON BY FLOCK IN 1912.

CALIFORNIA STATE FAIR, SACRAMENTO—Six firsts, four seconds, champion ram and ewe.

OREGON STATE FAIR, SALEM—Two firsts, five seconds, champion ram and ewe.

INTER-STATE FAIR, SPOKANE, WASHINGTON—five firsts, three seconds, champion ewe.

INTER-MOUNTAIN FAIR, BOISE, IDAHO—Eleven firsts and seconds, sweepstakes over all breeds, champion ram first and second, champion ewe first and second, and first for flock of one ram and five ewes of any age.

BISHOP BROS.,

San Ramon, Contra Costa County.

WORLD'S RECORD HOLSTEINS



Riverside Sadie De Kol Burke

Aralla De Kol, one year.....28,065.9 lbs. milk

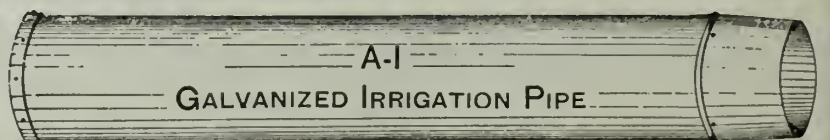
Sadie De Kol Burke, six months.18,255.8 lbs. milk

Place at the head of your herd a bull strong in the blood of these cows.

We invite you to inspect our herd and will cheerfully give you further information and prices.

A. W. MORRIS & SONS,

Woodland, Cal.



WHY does our A-I Surface Irrigation Pipe stand the hard usage to which it is subjected better than any other pipe, riveted or otherwise?

BECAUSE it is made with a lockseam set down under 3500 pound pressure, which requires no soldering to make it water tight (solder will break loose by jarring and hard knocks).

A-I Pipe was awarded first prize at Fresno and Santa Clara County Fairs in 1912.

Send for new catalog with prices and valuable information.

AMES-IRVIN CO., 8th and Irwin St., San Francisco.

Cost of Raising Horses.

Reports have been received from about 10,000 correspondents of the Bureau of Statistics of the Department of Agriculture upon the cost of raising colts on farms to the age of three years. The average for the United States is found to be \$104.06; or, if we deduct the value of work done by the horse before he has passed his third year, namely \$7.52, the net cost is \$96.54; this is 70.9 per cent of the selling value of such horses, \$136.17.

The cost varies widely by States, from an average of \$69.50 for New Mexico, \$71.59 for Wyoming, and \$82.47 for Texas to \$156.60 for Rhode Island, \$149.98 for Connecticut, and \$141.80 for Massachusetts.

Itemized, the cost is made up as follows: Service fee, \$12.95; value of time lost by mare in foaling, \$10.06; breaking to halter, \$2.22; veterinary service, \$2.04; care and shelter, first year \$4.98, second year \$5.36, third year \$6.35; cost of grain fed, first year \$4.98, second year \$7.14, third year 9.56; hay, first year \$4.14, second year \$6.61, third year \$8.48; pasture, first year \$2.56, second year \$5.41, third year \$6.21; other costs, \$5.01; total \$104.06.

The total cost for all feed is \$56.30, being \$21.68 for grain, \$19.23 for hay, \$14.18 for pasture, and \$1.21 for other feeds. The total cost of care and shelter is \$16.69. Of the total cost, 54 per cent

is charged to feeds, 16 per cent to care and shelter, and 30 per cent to other items, as enumerated above.

As more than half the cost of raising a three-year-old horse on the farm is chargeable to feeds, it is readily observed how important is the influence of variation in prices of feedstuffs upon such cost.

G. W. CLARK GETTING HOLSTEINS.

G. W. Clark of Hanford, recently purchased from C. K. Knestric of Reedley, a pure-bred yearling heifer and a registered 4 year old bull. The heifer was added to Mr. Clark's pure-bred herd and the bull is being used as service bull for his grade herd.

Like others in the pure-bred business Mr. Clark is finding it difficult to buy heifers or mature cows of the Holstein breed, and for this reason is having to depend upon his off-spring for the up-building of his herd. Counting young stock he has at present over 25 head of pure-breds and expects to continue to build up both in numbers and in quality. Some fine grades can be seen on this ranch which are the result of culling out and of using pure-bred bulls.

On our visit to Mr. Clark's, he stated that he expects to exhibit at the Hanford Fair and may possibly go to the State Fair at Sacramento. His herd bull, which took first prize at the Hanford Fair last year, is showing up well and will no doubt be among those exhibited at the fairs.—J. C. L.

STOCK ON FOREST RESERVES.

The action of the Bureau of Forestry in deciding to open the forests to stockmen whose ranges have suffered from lack of rain should do much good. We have received from a correspondent in Kings county the following regarding the situation in that part of the San Joaquin valley:

"Just saw Chas. Kimble. He showed me a telegram from the District Forester stating that they have approved the opening of the high Sierras to sheep and that details were being arranged for the immediate opening of same. Mr. Kimble stated that conditions here are very bad for both the cattle and sheep men, but worse for the sheep men, as with the tariff mess no market is available for the sheep as it is for cattle.

"There are applications in for from 300,000 to 400,000 sheep, but Mr. Kimble does not know how many can be handled. He is also afraid that unless some immediate steps are taken, sheep men will suffer before they open up the range.

"Twelve hundred head of cattle are being shipped out of the county by one man on account of the shortage of feed this week."

VOGEL HERD OF HOLSTEINS.

The Vogel herd of pure-bred Holsteins near Fresno, are rapidly being built up, several head of heifers having been purchased recently from Mrs. Sherman of Fresno. There are 65 head of pure-breds in the herd at the present time some of them the result of breeding on this ranch. The product of this herd all goes to the Fresno city milk trade, thereby realizing more than would be for butter-fat as 14c. per gallon is the summer price and 16c. per gallon during the winter months.

In line with the breeding up of this herd, Mr. Vogel recently imported 4 heifers and a bull from Wisconsin.

Recent sales from this ranch are 7 bulls, 6 going to the Jersey Farm dairy at Fresno.—J. C. L.

THE BEST LINIMENT

OR PAIN KILLER FOR THE HUMAN BODY

Gombault's Caustic Balsam

IT HAS NO EQUAL

For —It is penetrating, soothing and healing, and for all Old Sores, Bruises, or Wounds, Felons, Exterior Cancers, Boils, Corns and Human Bunions CAUSTIC BALSAM has no equal as a Liniment.

We would say to all who buy it that it does not contain a particle of poisonous substance and therefore no harm can result from its external use. Persistent, thorough use will cure many old or chronic ailments and it can be used on any case that requires an outward application with perfect safety.

Perfectly Safe and Reliable Remedy for
Sore Throat
Chest Cold
Backache
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Sprains
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Lumbago
Diphtheria
Sore Lungs
Rheumatism
and
all Stiff Joints

REMOVES THE SORENESS—STRENGTHENS MUSCLES
Cornhill, Tex.—"One bottle Caustic Balsam did my rheumatism more good than \$120.00 paid in doctor's bills."
OTTO A. BEYER.
Price \$1.00 per bottle. Sold by druggists, or sent by express prepaid. Write for Booklet R.
The LAWRENCE-WILLIAMS COMPANY, Cleveland, O.

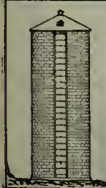
BERKSHIRES

Our herd is now one of the best in the State, being rich in Silvertip, Black Robinhood, Longfellow, Empress and Masterpiece Strains.

Prices reasonable, satisfaction sure. Correspondence solicited from interested parties.

OAK GROVE DAIRY FARM,
Woodland, Cal.

THE PACIFIC SILO



a Concrete Silo with all modern improvements. As permanent as the ground upon which it stands. Especially constructed to meet the requirements of the Pacific Coast States.
CONTINUOUS OPEN DOOR FRONT

Perfect System of Ventilation and Drainage.

The most economical silo to build and to use. Write for "Catalog C" to
DELTA CONSTRUCTION CO.,
P. O. Box 908, Sacramento, Cal.

Ask Your Neighbor About his DE LAVAL

Wherever
you find a De Laval
user you will find a "booster."

The De Laval satisfies, pleases and makes money for its more than a million and a half owners.

There are probably quite a number of your neighbors who are using cream separators and in most communities a majority of these machines are De Laval.

If you expect to buy a separator it will be worth your while to see what some of these De Laval users think of their machines.

If the evidence of your neighbors who use and recommend the De Laval is not enough to convince you of De Laval superiority, have the local De Laval agent put one in on trial for you and try any other machine you want to alongside of the De Laval.

Let the De Laval start saving your cream right now, this spring. It will soon pay for itself.



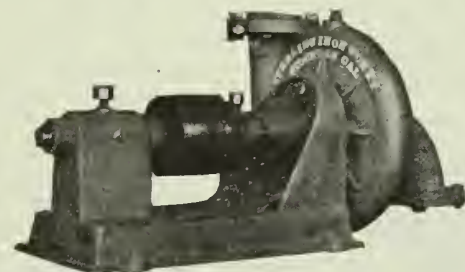
The new 72-page De Laval Dairy Hand Book, in which important dairy questions are ably discussed by the best authorities, is a book that every cow owner should have. Mailed free upon request if you mention this paper. New 1913 De Laval catalog also mailed upon request. Write to nearest office.

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Supply
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SOONER OR LATER
YOU WILL BUY A
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STERLING PUMPS



Are easy running, well balanced (none better), durable, and of larger capacity than any other pump (of same rated size) on the market. All parts interchangeable, removable bushings, deep packing boxes guaranteed not to run hot in bearings.

We build them from 1½" to 7" inclusive.
Write for Circular and Prices.

STERLING IRON WORKS, Inc.,
STOCKTON, CALIFORNIA

YUBA CENTRIFUGAL PUMPS



YUBA HIGH GRADE
IRRIGATION PUMPS

Direct connected or belt driven. We build pumps varying in size from two inches up.

Special features to reduce operating costs worked out in the field.

DURABILITY, EFFICIENCY, ECONOMY. Write us for particulars and prices.

THE YUBA CONSTRUCTION CO.

Works, Marysville, Cal.

311 CALIFORNIA STREET, SAN FRANCISCO

IRRIGATING PLANTS AND WATER SUPPLY OUTFITS

SIMPLE OIL ENGINES

Can be successfully operated by an inexperienced person on kerosene or distillate, not consuming ¾ pint per h. p. hour.

This is the Engine you have been looking for and you can buy it by paying part cash and the remainder in payments to suit.

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COMMERCIAL IRON WORKS

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STARRETT PUMPS

for deep wells up to 1,000 ft. lift. Also small pumps for domestic purposes replacing windmills. Starrett Pumps have given entire satisfaction for many years. They excel in efficiency and durability.

SWINE.

REGISTERED BERKSHIRES—Boars and young stock; write for prices; immediate delivery; satisfaction guaranteed or money refunded. Glorietta Stock Farm, Woodland, Cal.

ANOTHER LITTER from Queen Bertha 2nd, the famous Berkshire Sow. Three-month-old pigs may be secured if ordered at once. Dixon Estate Co., Wallace, Cal.

REGISTERED DUROC JERSEY SWINE—Some extra good young boars for sale, ready for service. Best Eastern strains. Ed. E. Johnson, Turlock, Cal.

REGISTERED BERKSHIRE SWINE—Best Eastern strains; bred sows and spring pigs for sale. A. B. Humphrey, Mayhews, Sacramento Co., Cal.

REGISTERED DUROC JERSEYS—No better anywhere. Boars, sows and young stock for sale. Immediate delivery. Jno. F. Daggs, Modesto, Cal.

MULEFOOT HOGS—Prolific, easy feeders, very prepotent. Young stock eligible to entry; also a few grades, cheap. Edouard Bryant, Lemoore, Cal.

REGISTERED DUROC-JERSEYS—Young boars and sows for sale cheap. Iowa stock. G. KIRSTEIN, Red Bluff, Cal.

POLAND-CHINAS; large type. The Browning Stock Farm. W. H. Browning, Woodland, Cal.

KNOB HILL STOCK FARM—Reg. Poland-China swine. A. M. Henry, Farmington.

CALIFORNIA NURSERY CO. Niles, Cal. Breeders of Thoroughbred Berkshires.

CHAS. GOODMAN, breeder of High-Class Berkshire Swine. Willams, Cal.

TAMWORTHS—THE BACON HOG. Kennedy Bros., Amsterdam, Cal.

S. B. WRIGHT, Santa Rosa—Registered Berkshires and Jerseys.

REGISTERED O. I. C. SWINE. C. B. Cunningham, Mills, Cal.

HORSES AND MULES.

PURE-BRED REGISTERED PERCHERONS AND BELGIANS. A few choice young stallions from three to five years old, also two and three year old fillies for sale. Los Altos Stock Farm, Los Altos, Cal.

PERCHERONS—Pure-bred, registered, 2-year-old stallions for sale; or will exchange for draft horses or stock cattle. H. T. Lillencrantz, Aptos, Cal.

BIG BONED BREEDING JACKS for sale. Jas. W. McCord, Hanford.

RUBY & BOWERS, Davis, Cal.—Registered draft stallions, all breeds.

DAIRY CATTLE.

RANCHIOS DOS RIOS, breeders of registered Jersey cattle. Oldest and largest herd in California; established 1868. A few young bulls from best cows in herd ready for delivery. Address R. E. Watson, R. No. 2, Modesto, Cal.

JOHN LYNCH, breeder of Registered Short-horns, milk strain. High class stock. First-class dairy breeding. Smooth cattle. Best pedigree. P. O. Box 321, Petaluma, Cal.

T. B. PURVINE offers for sale a few nice registered young Jersey bulls and bull calves out of fine cows. Petaluma, Cal. R. F. D. 4, Box 195.

GRADE SHORT-HORN DAIRY COWS FOR SALE, also a few registered Holstein bull calves. Apply A. Balfour, 350 California St., San Francisco.

CARRITHER'S HERD OF REG. JERSEYS headed by Gertie's Lad 70050. Bull calves for sale. Price \$50 to \$150. R. No. 3, Box 105, Tulare, Cal.

H. N. LOCKE CO., Lockeford, Cal.—Choice young Jersey bulls and bull calves from prize winners and producers.

CHAS. N. ODELL, Waukegan herd of registered Jerseys. Correspondence solicited. R. No. 5, Modesto, Cal.

MINOR & THORNTON, Breeders of Reg. Holstein-Friesian cattle. Kearney Park P. O., Cal.

REGISTERED JERSEY CATTLE—Young stock for sale. W. J. Hackett, Breeder, Ceres, Cal.

BEEF CATTLE.

SIMON-NEWMAN CO., Breeders of Registered Herefords. R. M. Dunlap, Manager, Newman, Cal.

SHORT-HORNS—Villager heads the herd. D. R. Hanna, Ravenna, Ohio.

T. B. GIBSON, Woodland, Cal.—Registered Short-horns and Poland-Chinas.

HEREFORDS—Fairfax Perfection heads herd. J. P. Cudahy, Belton, Mo.

HEREFORDS—Gay Lad 6th heads herd. O. Harris & Sons, Harris, Mo.

SHEEP.

CHAS. KIMBLE, Breeder and Importer of Ramboulllets. Hanford, Cal.

JERSEYS IN TULARE.

A more recent convert to the pure bred Jersey is Mr. X. Carrithers whose ranch is located southwest of Tulare. Mr. Carrithers purchased his foundation at Geo. A. Smith's sale about a year ago and since then has added to it with the same stock by buying from others who in turn got the stock at Smith's sale.

Among those purchased afterward was the bull Gerties Lad which was bid up to over \$1600 at the sale, being the highest price ever paid for a Jersey bull on the coast.

The value of good foundation stock cannot be over-estimated, and for this reason Mr. Carrithers was fortunate in securing such a bull to head his herd.

There are at present on the ranch three fine heifers from Gerties Lad and one from Gerties Son which shows the superior quality of this great old sire's get.

While no official testing has been done with this herd since Mr. Carrithers bought them they have been entered in the Tulare Cow Testing Association and have made a good showing.

In the future the entire herd will be officially tested as this is considered one of the most essential features of pure bred records.

A good deal of white dent corn will be planted this year for ensilage and a silo built. It is Mr. Carrithers aim to make this herd one of the finest in the State and with the foundation he has to build upon he will no doubt be a contender for Jersey laurels in the future. Some of this stock will be seen at the State Fair next fall for the first time.

SILVER NITRATE FOR SORE EYES OF LAMBS.

I. C. Sisiman, of Fort Klamath, wrote the Oregon Agricultural College that many of his lambs have eye trouble at birth. The eyes are sore, and in some cases have become covered with a light-colored scum. Some become blind, and one now two weeks old has an inflamed growth on the eyes. The same condition existed last year. The ewes are in good condition, having wintered on wild meadow hay. The lambs are strong and seem to grow well.

Dr. B. W. Hollis, the college veterinarian, advises him to drop a few drops of a solution of silver nitrate, 1 part to 5,000 of water, in the eyes of the lambs as soon after birth as they can be found, and to repeat daily for 10 days. This proportion solution, 1 to 5,000, may be secured at the drug store. He does not advise the preparation of the solution at home.

If, in some instances, the eyes become much inflamed due to this treatment, he recommends its discontinuance at the end of five days, substituting a saturated solution of boric acid.


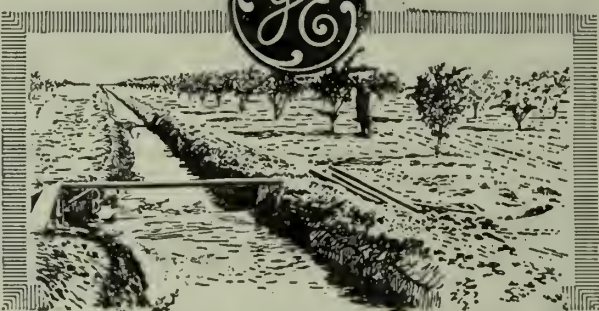
IRISH BACON TO BE KEPT AT HOME.

A despatch from Dublin, Ireland, says that a syndicate headed by a couple of Chicago men is in process of formation in the west of Ireland, which, it is believed, will go far to revolutionize the Irish pork industry in Great Britain.

The men in question are George J. Coleman and Edward C. McDonald, who claim to have quite a unique experience in the business gathered in the Chicago stockyards and other places throughout the American continent. The scene of their operations will be the city of Galway, where they propose to set up a modernly equipped factory, which will be capable of handling anything from 70,000

MISCELLANEOUS.

JERSEY CATTLE, DUROC JERSEY SWINE. Mossdale Farm. J. E. Thorp, Stockton, Cal.

Electricity is Now the Cheapest and Most Convenient Farm Power

One example alone—the thousands of electrically driven pumps used for irrigating—proves the economy, convenience and popularity of electric power.

Be in the front rank yourself—use this economical power for pumping, spraying and all farming operations. You will find that electric power brings economy of time, labor and money to you as it has to hundreds of other fruit growers, stockmen and farmers. Your electric company can supply current for any of the types of

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BOYS

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to 80,000 pigs annually, and the main object will be cheap and rapid production, which will have the effect of considerably reducing the price.

The promoters of the scheme have been trying for a long time to understand the economic considerations that prompt the Irish people to send their pork and bacon abroad, while they annually import thousands of tons of meat from the United States and other places.

The experiment of endeavoring to keep Irish bacon in the land of its origin and oust the foreign product will be watched with some anxiety by the Irish industrial revivalists.

FLORIBEL HERD CHANGES MANAGEMENT.

The Floribel Land & Cattle Co. have recently installed Mr. W. W. Lamon as manager of their ranch at Hardwick, Kings county. Their herd of pure-bred Holsteins exhibited at the Hanford Fair last year is doing very well considering the shortage of feed prevalent in that section this year.

The heifer Trixie Arona De Kol showed at the fair last year is developing into a fine individual. With the records back of them and careful selection this herd should make a fine showing and probably will, under the new management, be built up to a very high standard. Lack of feed has in the past been the main source of worry on this ranch, but from now on the wells on the ranch will be developed and new alfalfa put in yearly. This year a big acreage was put into grain.—J. C. L.

DISEASES OF CALIFORNIA BEES

Beekeeping is a very important industry in California and the organization of various clubs, united into one State Beekeepers Association and still later the formation of the Consolidated Honey Producers of California by the latter organization, all help to put the industry on a firmer footing. The Association is endeavoring to secure action by the legislature that will permit an effective campaign to go continually on against bee diseases that are setting back the industry. Uncontrolled, these diseases will set back the industry more and more. Controlled, it will go forward far beyond its present development.

The following information, which was procured by the California State Beekeepers Association from the various railroads, the various county associations and from the leading honey producers of the State, shows the importance of the industry and the injury that controllable diseases are doing.

The number of colonies of bees in the State of California is 588,000; the average yearly production is 70 pounds to the colony, and the average eastern shipment is 500 cars. The total average yearly production is 41,160,000 pounds, which valued at 6 cents a pound is \$2,469,600.

Owing to the devastation in many apiaries caused by brood diseases the output is falling off, but if properly protected the output will increase to double in a short time. The percentage of loss caused by American foul brood and European foul brood, commonly called black brood, during the past few years is as follows: 1909, 7 per cent; 1910, 10 per cent; 1911, 14 per cent; 1912, 20 per cent. In many portions of the State vast sections are swept by black brood with a resulting loss of 50 or 75 per cent. The disease is spreading fast, and if the apiaries are not protected by law it will wipe out the industry in many places. Unfortunately, unscrupulous men move diseased bees into clean districts, thereby scattering the disease broadcast. The loss of bees caused by brood diseases is a serious con-

dition and is a constant drawback to the advancement of the industry.

The bee men want skilled inspectors in the counties to have charge of disease control, something as there are county horticultural commissioners. We learn from the Western Honey Bee, the paper of the State Association, that State Horticultural Commissioner Cook procured an amendment to the bill which would make the State Commissioner, his secretary and the dean of the University Farm at Davis, the Board of Examiners for these inspectors, which would put the appointment of county inspectors pretty well in the Horticultural Commissioner's hands. The bee men had this amendment stricken out and the Board of Examiners will probably consist of the president and secretary of the State Bee-keepers Association, or of the Consolidated Honey Producers of California, and the State Horticultural Commissioner. The bee men expect the bill to pass.

An examination of the flocks of Butte county and vicinity shows a total freedom from scabbies. This disease is next to eradicated all over the State, for that matter, but J. H. Webster, U. S. Veterinary Inspector, reports that he is unable to find any trace of it in that part of the Sacramento valley. Both range and sheep are in the best possible condition.

Kings county hogs are sustaining their reputation. The University of Nevada has bought a number of the hogs of W. F. Bernstein, the order resulting from visits of Prof. G. H. True to the Kings County Fair in 1910 and 1911, where he judged the stock exhibited.

Fully 100,000 pounds of wool have already been shipped to San Francisco from McKittrick, Kern county, and shearing will be continued until the last of the month, by which time the clip will amount to about 200,000 pounds.

The Noyo Land & Cattle Co. has brought its sheep over to the coast in Mendocino county, one of the largest flocks ever brought over there by the company having been recently shipped.

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The old reliable remedy for curb, splint, bony growths, ringbone, spavin or other lameness. 35 years of remarkable results. \$1 a bottle, 6 for \$5. At all drug stores. Ask for Free Book, "Treatise on the Horse." Dr. B. J. Kendall Co., Enosburg, Falls, Vt.

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NURSERY TREES, fruit and ornamental. Nearly all varieties to be seen on our experimental place near State highway. LEONARD COATES NURSERY COMPANY, Morganhill, California.

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RINGNECK PHEASANTS—Eggs for hatching. T. D. Morris, Agua Caliente, Cal.

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Feeding for Egg Production in Different Breeds.

[Written for the PACIFIC RURAL PRESS by Mrs. SUSAN SWAYSGOOD.]

There has not been as much attention paid to the subject of feeding different breeds according to their needs as there should have been. Possibly the reason is that to very many a chicken is just a chicken and nothing more. Breeders have a method of their own, as a rule, and do not care about telling others; not from selfish motives always, but because what does well for their flock may not do well for another under different conditions.

Anyone that keeps his eyes open soon learns that the active non-setting varieties will stand and even do better on a ration that is more fat producing than will the heavy breeds. Possibly up to a month old all chicks may be fed alike, but at no age, except when getting ready for the table will it pay to feed all hens alike. And I think that is one great

reason why so many people are failing to do well in the poultry business.

STUDY THE BREED.—Study up the breed you keep. That is the first thing to do in order to make a success, and until you do your success will be more a matter of chance than of good management. If you are breeding any of the small, active breeds, and you have land that can be used to raise feed, grow Kaffir corn. The Leghorns, Anconas, Campines and Buttercups all come under the class of small breeds. The Minorca is what might be termed a medium breed between the two, so is the Rhode Island Red, and these will stand and do well on some corn in cold weather. But when we come to the Rocks, Orpingtons, Wyandottes and others, corn should be a taboo food, except in cold countries, and of them we are not speaking.

W. G. Krum, poultry lecturer at Cornell University, in speaking on "Feeding for Egg Production" at the recent "Farmers' Week" at Cornell, said that "the hen is an egg machine, and if the machinery is to be kept free from clogging and there are to be no wastes, the poultryman must not feed waste food.

"The ideal ration," he said, "is to give such feed as will contain one part protein to four and six-tenths fat, together with enough moisture to oil the machinery.

"A successful poultryman down East, when asked what he fed to get eggs, said, 'One pail mixed feed to nine pails of common sense.'

And that is correct, for no matter what we feed, if we do not mix it with a good supply of common sense it will not give results.

CONCENTRATED FOODS.—A long list of foods and food values is not much use to the average person who is too busy to remember all the complicated figures. One thing to bear in mind is that if we are to feed no waste, the feed must be more concentrated. This saves the energy of the hen and of course "keeps the machine from clogging." As the egg-shell is 94 per cent mineral matter, it is necessary to serve food that contains a fair amount of mineral matter. Any of the clovers, alfalfa, and other green feed will do, and also oyster shell and air-slacked lime will help.

Meat in some form must be fed daily if we are to get eggs, unless the hens have a good range, in which case it is not any use to fuss about the ration, because they will balance it themselves.

Variety is the spice of life when it comes to egg laying, for the hens that are fed the largest variety will lay the greatest number of eggs in a given time, provided, of course, that they are good laying stock.

The following record is given by Mr. Krum: "Forty pullets fed dry mash showed a profit of \$28.61, while another flock of forty fed on wet mash showed a profit of \$21.25, and the chicks that came from the dry-mash lot were stronger and brighter, and no trouble was had with the digestion. With wet mash, the digestion was more or less out of order, and the chicks suffered. Another lot of forty were fed whole grain, hand scattered, and they showed a net profit of \$19.96, while a hopper-fed flock of forty showed a profit of \$15. This test, while not as complete as it might have been, shows that the hens that were fed a variety of feed, in a manner that forced them to take it slowly, did the best. Wet mash is usually gobbled up in a hurry and causes indigestion."

What breed the pullets were, or

POULTRY.

MAMMOTH BRONZE TURKEY EGGS—From the largest and best pure-bred flock in the world. All turkeys carefully selected, and combine the greatest prize-winners and the best blood of the East and Middle West. They have large bone, long deep bodies, full breasts, brilliant plumage and are healthy. No inbreeding. Write for further information. Geo. A. Smith, Corcoran, Cal.

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BABY CHICKS, from heavy layers. White Leghorns, Barred Rocks, R. I. Reds. Free folder. White Hatchery, Petaluma.

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TRAPNESTED S. C. WHITE LEGHORNS. Eggs, chicks, stock. A. R. Schroeder, Box P, San Gregorio, Cal.

WHITE LEGHORNS—Chicks, eggs, cockerels. Fine stock. Reasonable. O. B. Morris, Lodi, Cal.

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BRONZE Turkeys and Eggs. Ed Hart, Clement, Cal. Large size, good plumage, early maturity.

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HIGH PROTEIN

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WHITE LEGHORNS

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EGGS \$6 per hundred in lots of less than 1000 eggs. Orders in excess of this, 10c per dozen above highest market price one week before shipment. 75% fertility guaranteed.

TO make room for young stock we offer 4000 two-year-old hens in full laying for \$15 to \$18 per dozen. 1000 one-year-old hens for \$18 to \$24 per dozen.

8000 hens yarded—sanitary conditions perfect.

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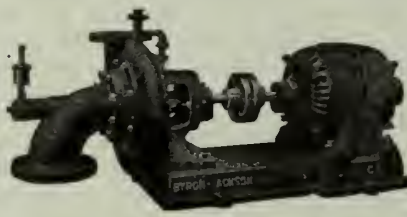
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whether each forty were of the same breed, is not said, though that would surely have added to the benefit of those trying to copy the feeding. But that is generally the way—some important idea is forgotten, or held back, and that makes the rest of the information of very little use to others.

S. C. WHITE LEGHORN BABY CHICKS.
\$9.00 per 100, \$85.00 per 1000.

S. C. WHITE LEGHORN HATCH-EGGS.
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My stock is thoroughbred and carefully selected for Standard and laying qualities.

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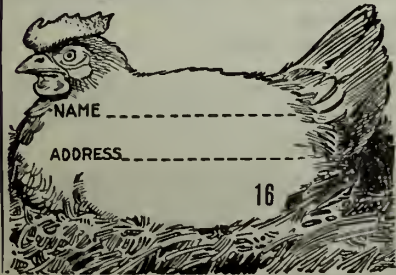
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No Second Payment for 4 Years
Fill out this coupon now while it is before you.

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COMMON SENSE.—The man who fed one pail of mixed feed to nine pairs of common sense certainly left a good deal for his hearers to work out. Whether he fed grain and dry mash, meat and shell material altogether, or had paper between would be a puzzle for some of them, for some folks are so used to hiring their thinking done for them that their thinking gets rusty. Common sense is just every-day "gumption," and "gumption" is the right use of the perceptive faculty. If children were taught to use all the senses, and to use them quickly, too, instead of so much cramming with dead men's knowledge, we would all be better supplied with that rare article "common sense."

And there is no place in the world where it can be used to better advantage than on the farm, no matter what department of the farm you are in. Poultry raising, calls for a large quantity of it, and the poultryman who does not use it soon goes to the wall to make room for others. I think Californians compare well with any part of the world, but none of us are any too well supplied, so it won't hurt us to grow some, and it can be grown just like other things. The first place to use it in the feeding problem is in discriminating between the feeding of pullets and old hens, no matter what breed. The pullet can use more feed, to good advantage, than the two or three year old hen; hence hens and pullets should never be fed together, for one gets too much and the other too little. Having this in mind, make some experiments and find out for yourselves.

The next place is to discriminate between the different breeds. If you keep only one breed it is an easy matter to find out just what feed they do best on, and having found out by your own experiments, stick to that and let nothing switch you from it, except in a small way, as another experiment. There is no progress made by staying in a rut, but when it's good rut, better stay in it than be bumping over the rocks in some other fellows personal road.

Mrs. Inquirer, Modesta, sends us a problem to solve for this week. She says, "I set the Buffalo incubator and it ran just right. Temperature all through tested well. I had White Leghorns, Red Orpingtons, and Barred Rock eggs in it. All the eggs hatched well except the Barred Rocks. Only about one-third of them hatched, a number of them never pipped, and some were so long in coming out that they were ruptured and had to be killed. Talking with people who run incubators some say I had too much moisture; others that I had too little. I would like to know the cause. The skin of the egg stuck tight to the chick, but so many never pipped."

ANSWER.—This is an inquiry that I like to have because it is educational. In the first place this mixing of eggs is always disastrous to one variety. The strongest generally come out best. Leghorns' eggs mature quicker in the incubator than any brown eggs, consequently the chicks always come out ahead, and as they consume much of the oxygen in the incubator the other chicks have a hard time to get out at all. In this case probably the Barred Rock eggs were not quite as fresh, they had perhaps been held over a few days longer than the Orpingtons and the Leghorns and so they found a warm room but one lacking in oxygen, which a chick must have to enable it to get out or even pip the shell. I don't think the moisture cut any figure in this case; when there is too much moisture the chicks have a glutinous substance sticking to them, and when there is not enough moisture the skin does usually stick to the chick tight. But, as the other chicks came out all right the moisture could not

be to blame, or they would have suffered in the same way. The best way is to hatch only one kind of eggs at one time in the same incubator, but people will mix them, and in every case they lose out.



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Circular containing 100 mechanical movements mailed free.

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Very best quality of selected second-hand water pipe and standard casing pipe. All newly cut threads and new couplings attached; asphaltum dipped. Fully guaranteed. At extremely low prices. **BUY NOW** while the opportunity prevails.

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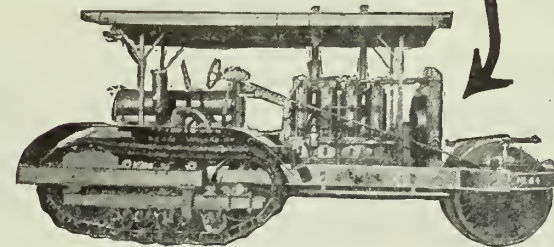
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With its
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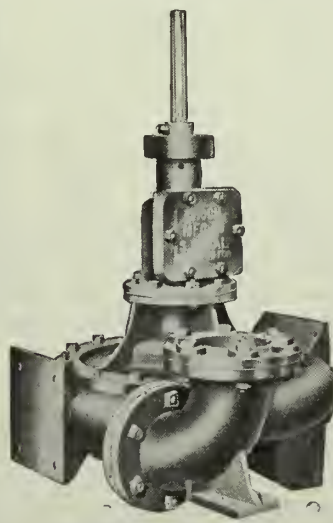
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AGRICULTURAL REVIEW.

Fruit Notes.

The Fresno Republican says that the Associated Raisin corporation is buying raisins of the 1912 crop in large quantities, and \$40,000 worth of the fruit around Fowler is said to have been purchased recently, for which 2 3/4 cents has been paid.

The almond crop of Butte county is now placed at between 25 and 35% of a normal yield.

The Chico prune pool that was organized last fall and which controlled 1000 tons, was dissolved last week. About 650 tons of the fruit had been sold at prices averaging less than 3 cents, but with about a half crop in prospect those who did not sell expect better prices.

The first carload shipment of cherries for the season left Sacramento last Sunday for the East. The car was made up of cherries from the Sacramento river district and from Placer county.

The cannery at Oakdale commenced putting up green peas last week and expects to have an unusually heavy run this season.

A meeting of about thirty fruit growers was held at Fresno last Saturday for the purpose of organizing a "Dried Fruit and Raisin Association." The meeting was presided over by H. W. Wrightson of Fowler, and W. R. Nutting of Fresno explained the method formulated for co-operative selling. The idea is that to start with, the proposed association would handle principally cured peaches, prunes, etc.

Fruit growers of Lake county suffered heavily from frosts which fell there on the nights of April 27 and 29. Pears and prunes were the fruits hardest hit.

Stock and Dairy.

The first of 1000 head of fat range cattle, consisting of 144 head, was shipped from Porterville to Los Angeles last week. The stock came from the range and were in fine condition, averaging over 1500 pounds per head, and the 144 beeves netted Gill Bros. nearly \$15,000.

According to the Tulare Register, one of the large hog ranches of the West is to be started by Dr. Chas. W. Bryson of Los Angeles on his 16,000-acre ranch near Angiola. The ranch is to be fixed up in model style for the economical production of pork.

From Chicago the news comes that a remarkable demand has developed in Idaho, Montana and Utah for grade milch cows. Large shipments are being made from the central States to supply the demand.

Large shipments of cattle and sheep are being made from Kings county. They are being shipped to Imperial county to fatten.

Bert McKinsey of Manton recently purchased 700 head of beef cattle in the southern part of the State and will ship them to northern pastures, which are in fine shape.

The monthly report of County Live Stock Inspector Frank Griffith, of Kings county, shows stock to be in a healthy condition. One or two cases of lumpy jaw were found during the month, one case of blackleg, and several of forage poisoning.

J. C. Kelly, of Livermore, sold 1000 lambs to a Berkeley party last week for \$3.75 per head.

H. A. Jastro, president of the American National Live Stock Association, has left Kern county for Washington, to work in the interests of a fair tariff on hides and wool. Jastro is one of the leaders in the Democratic party of this State.

Cattle raisers in the Klamath Falls district are buying up quantities of stock

hogs and feeding them with potatoes raised there last season, for which there was no market.

A. J. Clipper of Los Angeles was at Turlock last week and purchased several cars of cattle to feed them on his Imperial county lands.

The dairy bill, which was backed by the dairymen of the State, passed the senate at Sacramento Monday evening, and now is before the Governor for his signature.

Agricultural Notes.

The crop of hay and grain growing in Butte county is said to be the best ever raised there and will be heavier than grown in any other county in the State.

The Chico Enterprise states that capitalists from Dallas, Texas, will plant out quite an acreage of adobe land near Gridley this season to long staple cotton. They will bring their own seed and laborers to give the experiment a thorough tryout.

The barley crop of Imperial has been greatly damaged this season by the aphids, a species of plant louse.

A dispatch from Exeter, Tulare county, states that 400,000 pounds of Turkish tobacco is being prepared for shipment to Durham, S. C., to be worked up as pipe and cigarette stock. The price paid for the tobacco is given at 55 to 65 cents per pound in the bale.

The fine 260-acre alfalfa and stock ranch belonging to H. M. Diepenbrock, which lies a few miles south of Sacramento, was sold last week to J. N. Heenan, the well-known horseman and stock importer of Sacramento. The price of the property is reported to be about \$65,000.

The intake gates of the main canals of the Modesto and Turlock irrigation districts are to be raised one foot by adding twelve-inch flash boards just above the La Grange dam. This added height at the intakes will give an added register to the gauges at the point of distribution.

An unusually heavy crop of alfalfa is expected to be harvested in the Sacramento valley this season. Barley will be a fair crop, while wheat will be lighter than usual, owing to the season and the further fact that many large ranches are being subdivided.

Judge John C. Gray, of Oroville, has received a consignment of Burbank's spineless cactus and will grow it on his land south of that town.

An 86-acre alfalfa ranch near Corona was sold last week to B. F. Wood, of Washington, for \$40,000.

The Lindsay Gazette says that after an investigation it believes that the new acreage set out to alfalfa near that town this season will amount to fully 2000 acres. Dairying will, as a result, largely increase around Lindsay next year.

Land Development.

Last week 5833 acres of land belonging to the old Chowchilla ranch in Merced county was sold by the U. S. Farm Land Co. to the Merced Investment Co. The new owners will subdivide and colonize.

F. G. Wright of San Francisco and F. X. Pfaffinger of Los Angeles have purchased 240 acres of citrus land near Deer Creek, Tulare county. The new owners expect to plant 80 acres to oranges at once.

It is announced that T. B. and R. J. Gibson have sold their 320-acre tract of land southwest of Woodland to Dr. A. A. Stewart of Winona, Minn. The new owner expects to subdivide and sell the land.

The Foster ranch of 320 acres near Esparto was sold last week to D. J. Alt-

man, an Oakland dairyman. This ranch has plenty of irrigation water and 160 acres planted to alfalfa.

The River Garden Farms Co. last week added to its holdings over 6000 acres of land along the Sacramento river in Yolo county. This, with nearly 15,000 acres already owned by the company, will be colonized.

Land Developments.

A new irrigation district to cover from 20,000 to 50,000 acres is planned for the district northwest of Germantown and southwest of Orland. The water is to be taken from Stony creek, under filings made by H. A. Campbell and G. R. Freeman.

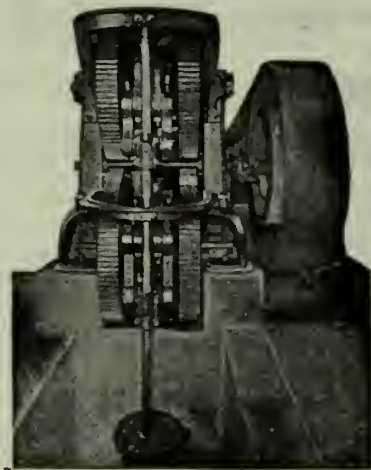
An irrigation system by means of storage reservoirs is being constructed at

Paisley, Lake county, in southern Oregon. A large colony of Danish farmers is to locate on the land when the irrigation project is completed.

Hugh Garnett is not only irrigating his 100-acre alfalfa field from water pumped from his fine wells near Willows, but has turned the water onto his 200-acre wheat field adjoining. The experiment in grain irrigation is being watched with interest.

John Glen, of San Francisco, has purchased from J. A. Yoakum 960 acres of land lying west of Gridley. The new owner intends putting the land in shape to plant rice next season.

The old J. G. Fair ranch of 10,300 acres, lying along the Sacramento river near Knights Landing, is to be cut up into small tracts and placed upon the market very shortly.



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WHAT MIGHT BE DONE WITH RAISIN SEEDS.

[Frank Raback, chemical biologist of the Bureau of Plant Industry of the U. S. Department of Agriculture has just finished an elaborate investigation of the utilization of waste raisin seeds which are available in large quantities in this State. He does not undertake to demonstrate whether any of the by-products are economically possible or profitable, but simply shows what there is in these seeds if anyone wishes to go after it; and this is of course a good thing to know. We give Mr. Raback's conclusions. —EDITOR.]

In the pages of Bulletin 276, Bureau of Plant Industry it has been shown that four important commodities, namely, syrup, fixed oil, tannin extract, and meal, are capable of being made from the large quantities of grape and raisin seeds which result from the seeding of raisins and the manufacture of wine and grape juice in this country.

Commercially, the manufacture of the syrup could be accomplished with comparative ease and readiness. Owing to the solubility of the sugars in water, the process of preparation resolves itself into simple extraction and concentration. Comparatively small quantities of water are necessary to completely dissolve the sugary matter from the seeds. The washing could possibly be most readily accomplished in large centrifuges, while the saturated solution requires only to be evaporated to produce the syrup. As the most convenient form of concentrating, vacuum pans would be the most efficient and expedient.

A clear, transparent syrup, with the characteristic delightful taste and flavor of the raisin, can be produced from the sticky seeds. Its uses are many and should justify its production from this waste material.

The fixed oil has been mentioned as found in considerable quantity in the seeds of raisins and also in the seeds of grapes which occur as by-products in the manufacture of wine and of grape juice. After washing off the sugary matter and drying and screening the seeds, they need only to be ground for the production of the fixed oil. Two methods of extraction are feasible—by pressure and by solvents. Hot extraction by means of hydraulic presses would possibly yield the maximum of fixed oil. Cold pressure, having a tendency to incompletely extract the oil, would leave more fat in the press cake. Extraction by means of solvents such as benzine, carbon bisulphide, or low-boiling gasoline, or preferably, carbon tetrachlorid or trichlorethane, is practiced commercially because of the more complete exhaustion than by pressure, especially of materials with low oil content. The use of carbon tetrachlorid and trichlorethane has been recommended because of the noninflammable, nonexplosive properties of these solvents, both of which have comparatively low boiling points and are easily recovered. They are also capable of being used again for the same purpose.

The clear, amber-colored fixed oil, useful in paint and soap manufacture, and possibly in other industries, is capable of being produced in large quantities from waste seeds.

After the preparation of the syrup and the extraction of the oil from the seeds, the extraction of tannin extract has been recommended. The production of tannin extract is practicable only in the case of raisin seeds, since wine residues are probably largely depleted of their tannin content. The tannin, being soluble in water, can be extracted in a practical way by boiling the meal in large digestion vats, the solution being transferred to vacuum pans for concentration to a

moist extract. If a dry extract is preferred, it can be obtained by simply allowing the moist extract to dry in the air.

The large quantity of tannin extract which can be produced from raisin-seed meal and which is well adapted for the tanning of leather becomes the third important commercial product capable of being made from raisin seeds.

The final residue, the meal, seemingly already exhausted of all its constituents of value, still possesses useful qualities. The stock-feeding value of the meal has been discussed and a comparison made with several standard stock foods. While possibly it is not equal to some of the standard press cakes and meals on the market, yet on account of its high protein content its usefulness as part, at least, of a stock-feeding ration can hardly be denied.

AN ADVOCATE OF BLACK CURRANTS.

A week or so ago an inquirer was told that black currants were not a commercial success in California, largely owing to the fact that the market for them was very limited. Now comes an advocate for them in the following letter.

To the Editor: You apparently, like many Americans, do not like black currants. No one thinks the black currant is an excellent fruit for making into jam, jelly and also for puddings. In England the jam is largely used as a sauce for jugged hare, tarts, and also as a beverage in case of sickness by pouring boiling water on the jam. It is only within the last 20 years or so that the Americans acquired a taste for the canned apricot and apricot marmalade. It may possibly be an acquired taste like that for tomatoes as I well remember my first experi-

ence eating the tomato in Buenos Ayres some 50 years ago. I thought they might be good enough for hogs if they could be persuaded to eat them. Now I can eat them three times a day and 365 days in the year.—Samuel Haigh, San Jose.

This is a good argument toward the further planting of black currants for home use. Ultimately the market may be nursed up so that this fruit may be very profitable, but as yet the merits, if not appreciated, don't pay any bills.

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The Home Circle.

How Toggles Made It Rain.

"Shall I play on the piano?" asked mother. "No," answered Mabel. "Or tell stories?" "No." "Would you like me to play on my drum—just softly?" asked Toggles. "No."

It sounded a bit fretful; but, when it is a hot summer day and when a little girl is only six years old and just getting over the measles, and has to stay in a dark room with a bandage over her eyes, there is some excuse for fretfulness.

"I'll tell you," said mother, "brother will stay here with you while I get your lunch. After that maybe a nap will come."

Toggles began right away to tell Mabel all the interesting things he could think of, but by the time mother returned he was almost at the very last one.

"Mother," exclaimed Mabel, as she was being propped up in bed, "I know! I'd like to have it rain."

"Well, little daughter," said mother, kissing her, "I'm afraid that is something brother and I can't arrange."

She motioned that Toggles need not stay any longer, and he went out and looked up at the sky. Not a cloud in sight! It really did seem too bad, when rain was the only thing Mabel asked for.

Mother tiptoed out after a while and nodded that Mabel was asleep.

"I think it's too bad it won't rain for Mabel when she wants it to," he said. "Don't you suppose?"

But just at that moment the street sprinkler came around the corner, and Toggles leaped up so suddenly that mother had to put her finger to her lips.

"Mother," he exclaimed, "I know!"

Then he told his plan.

"May I?" he asked.

"I don't see any reason why you shouldn't," said mother thoughtfully, "but I wouldn't just yet. I'll tell you when."

In about half an hour she came out to nod to him, and off he raced. A moment later, inside the darkened room, Mabel lifted her head.

"Mother," she cried, "it's raining!"

"It sounds exactly like it," she said.

"And isn't it a lot cooler, mother?"

"It does seem so."

Nearly all the afternoon the sound of the falling rain continued. The next afternoon there was another "shower," and the next day another; and the fourth day Mabel was so much better that they let her come out, with the bandage tight over her eyes, and hold her hands in the

falling water as it dripped from the edge of the porch, which was great fun.

Next evening Uncle Ruyter came in to see the little sick girl, who was well enough now to leave off her bandage. She was telling him all about the measles.

"And the very best," she exclaimed, "were the rains!"

"The rains!" he said.

"It was such fun to hear them patter, patter on the porch roof."

"Why?"

But he stopped, for he saw that mother was making signals to him.

Toggles skipped out of the room, and almost as soon as he was back Uncle Ruyter exclaimed:

"Hark! Why, I declare, it's raining now!"

They all listened, and there was the patter, patter on the porch roof.

"It's done that 'most every day," declared Mabel.

Uncle Ruyter looked straight at mother, who was smiling oddly.

"See here," he demanded, "is this magic? It hasn't rained for a week at our house."

"Toggles is our magician," said mother.

"Shall I tell, mother?" asked Toggles, eagerly.

"I think so," she answered.

"Well," explained Toggles, "It isn't magic; but Mabel wanted to hear the rain, and I turned the hose so the water would fall on top of the porch. Even mother couldn't tell the difference," he added, "that's what you hear now. It isn't a real rain."

But it answered just as well as if it were.—Frederick Hall, in the Continent.

The "Ten Demandments."

For gross worldly wisdom it would be difficult to surpass the "Ten Demandments" hanging in one of the many salmon canneries at Stevenson, in western Canada:

1. Don't lie. It wastes my time and yours. I am sure to catch you in the end, and that is the wrong end.
2. Watch your work, not the clock. A long day's work makes a long day short, and a short day's work makes my face long.
3. Give more than I expect and I will give you more than you expect. I can afford to increase your pay if you can increase my profits.
4. You owe so much to yourself you cannot afford to owe anybody else. Keep out of debt or keep out of my shops.
5. Dishonesty is never an accident. Good men, like good women, never see temptation when they meet it.
6. Mind your own business, and in time you'll have a business of your own to mind.
7. Don't do anything here which hurts your self respect. An employe who is willing to steal for me is willing to steal from me.
8. It is none of my business what you do at night. But if dissipation affects what you do the next day and you do half as much as I demand, you'll last half as long as you hoped.
9. Don't tell me what I'd like to hear, but what I ought to hear. I don't want a valet for my vanity, but one for my dollars.
10. Don't kick if I kick. If you're worth while correcting you're worth while keeping.

Latest Form of It.

We have all been warned to count 10 before we speak when we are tempted to be ruffled, or to refrain from expressing all we feel in public, but a new story about a troubled passenger on a belated train told in Harpers Weekly puts these things in a different form. The impatient

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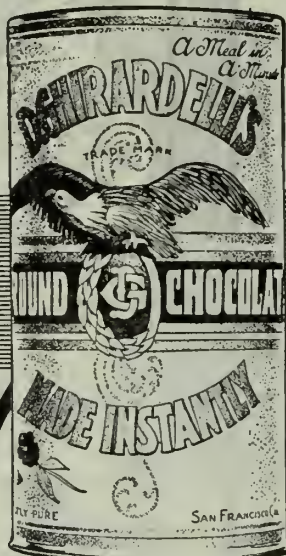
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traveler with an eye on his watch at last realized that the train could not reach his destination in time for his engagement. He began to state his opinion of the road and the management. The porter said: "There's a car out behind that we call the observation car. Nobody is in it at this time of night, sir, and if you would please go out there and

make the observations which you feel rising in your midst it would be pleasanter for everybody."

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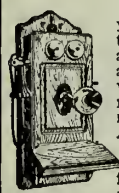
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into your work. Don't work "just to get through," work for the fun of working and for the pleasure of doing good work and doing it just a little better than anybody else.

Health Notes.

Celery is a good nerve tonic, and it is said that it helps to ward off rheumatism.

Salt used once a day is an excellent dentifrice, tending to keep off tartar. It is said to retard receding gums.

It is said that eating salted pop corn as soon as one begins to feel sick will immediately relieve sea or car sickness. It is a simple remedy and well worth trying.

Everyone should practice deep breathing daily in the open air. It increases the circulation, purifies the blood, aids digestion, promotes sleep, and quiets the nervous system.

To relieve the distressing itching of measles, bathe with water to which a little vinegar has been added. Relief is instantaneous.

A noted physician declares that iron, as a tonic, should never be taken in any other form than its natural state as found in the peach.

A cold often comes after eating a heavy meal and also from sitting in a close, ill-ventilated room. Live on plain, well-cooked, well-chewed food, breathe pure air, keep the skin in a healthy condition, and one need never have a cold.

Fats are nerve food as well as flesh builders. Thin, nervous people should eat plenty of good butter and rich milk or cream.

Castor oil is excellent for a cold, and a simple way to give it to children is to make a pan of molasses candy and add plenty of castor oil to it, just before removing from the fire. The taste of oil cannot be detected.

Mouth Breathing in Children.

Mouth breathing is an indication that something is wrong. It may be that the nose is stopped up because of secretion, because of enlarged tonsils, or because of adenoids. The tonsils may become so enlarged that they produce a pressure upon the inner ear and cause deafness. Adenoids may, and do, become so large that the space back of the nasal passages is completely closed.

A mouth breather does not sleep as well as the ordinary child. He usually snores. His voice becomes unsound in tone, and clear pronunciation is difficult. In time his face takes on a dull, apathetic look, and he gets a name of being stupid in his studies. Unless the adenoids are removed he is handicapped both physically and mentally.—Oregon Agricultural College.

Smiles.

"The codfish," said the professor, "lays considerably more than a million eggs." "It is mighty lucky for the codfish that she doesn't have to cackle over every egg," said the student who came from the farm.—Indianapolis Journal.

Molly, the new cook, had a habit of keeping her mouth ajar the greater part of the time. The habit annoyed her mistress exceedingly, and one morning she lost all patience. "Molly, your mouth is open," said the mistress. "Indeed, ma'am, so it is," said Molly, grinning. "I opened it."—Youth's Companion.

The curious effect that may be produced by a very small transposition of words and ideas is illustrated by this slightly "mixed" instruction recently given by an officer at drill to a company of men: "When I give you the command, 'Halt!' you will bring the foot which is on the

ground to the side of the one which is in the air, and remain motionless!"—San Francisco Argonaut.

Teacher: "What does the word 'celibacy' mean?" Class: "The state or condition of being single." Teacher: "Correct. Now, if you wanted to express the opposite of celibacy, or singleness, what

word would you use?" Bright Pupil: "Pleurisy."—Exchange.

A month-old Jersey calf was nibbling at the grass in the yard, and the summer girl eyed it doubtfully.

"Tell me," she said, turning impulsively to her hostess, "does it really pay to keep as small a cow as that?"

I have been a farmer for twentyfive years

and during that time have gained experience which, combined with my inventive faculties, have enabled me to produce farming machinery which saves time, labor and money. The products I manufacture are the result of long experiments and careful observation.

What You Can Do with The Schmeiser Port- able Automatic Derrick

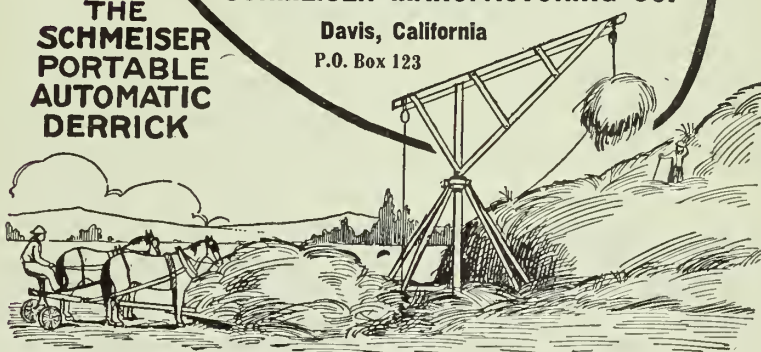
In moving hay from stack this derrick will do the work of 12 men. Loose or baled hay can be cheaply and quickly moved, dirt can be hoisted from excavations. Can also be used for raising building materials and lifting heavy loads of any kind. The Schmeiser Portable Automatic Derrick is portable and can be moved from place to place as easily as a farm wagon. This derrick is capable of doing a wide range of work, is simply constructed, easily operated and is always ready for immediate use.

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Eastern Excursions

On various dates during May and later,
from Los Angeles and all other points
on The Salt Lake Route.

ROUND TRIP FARES

Return Limit Three Months, but not later than October 31st

BOSTON	\$110.50	PORTLAND, ME.....	\$113.50
CHICAGO	72.50	SALT LAKE.....	40.00
DENVER	55.00	ST. LOUIS.....	70.00
MONTREAL	108.50	ST. PAUL.....	75.70
NEW YORK.....	108.50	TORONTO	95.70
MISSOURI RIVER POINTS.....	60.00		

and several other destinations at greatly reduced fares.
From Beach points fares are 70 cents more.

GO ONE WAY AND RETURN ANOTHER

if desired, without extra fare.

Full particulars at Ticket Offices

Salt Lake Route

Los Angeles Office, 601 So. Spring Street
San Francisco, 680 Market Street



THE MARKETS.

San Francisco, May 7, 1913.

(Unless otherwise noted, quotations represent prices paid to the growers.)

Cereals.

WHEAT.

While Eastern crop reports are favorable, the spot grain remains very firm here, and some holders are asking a slight advance. There is not much trading locally, however, all large buying being done in the north.

California Club, ctl.....	\$1.60	@1.62½
Forty-fold	1.65	@1.67½
Northern Club	1.60	@1.62½
Northern Bluestem	1.70	@1.77½
Northern Red	1.62½	@1.80

BARLEY.

The principal activity just now is in a speculative way, though there is some demand for spot feed and prices are firmly maintained, with poor crop prospects. There is no quotable advance, but some holders refuse to sell at the present figures.

Brewing and Shipping...	Nominal
Choice Feed, per ctl.....	\$1.45 @1.47½
Common Feed	1.40 @1.42½

OATS.

Business is rather quiet and red oats are practically nominal, very little being offered here. White oats are in light supply, and show a slight advance.

Red Feed	\$1.65 @1.85
Seed	2.00 @2.10
Gray	Nominal
White	1.70 @1.75

CORN.

No further change is noted in Eastern or California yellow, which are quiet but fairly firm. Egyptian corn is rather scarce and held at a slight advance.

Cal. Yellow	\$1.60 @1.65
Eastern Yellow	1.60 @1.65
Eastern White	1.60 @1.65
Kafir	1.50 @1.55
Egyptian	1.70 @1.75

RYE.

The firmer quotations still held nominally, though there is little demand and hardly enough business is being done to establish values.

Rye, per ctl.....	\$1.40 @1.45
-------------------	--------------

BEANS.

Nothing of much interest has developed in connection with the bean market for some time. Business in most descriptions remains very quiet, with some divergence of views between buyers and sellers, and there seems to be no urgent demand anywhere. While supplies of most lines are fairly large, prices have so far shown considerable steadiness, with very little decline in anything. Large and small whites are still finding a little demand, and with diminishing supplies prices continue to move upward. Horse beans also have been marked up a little this week. Limas are quiet and rather easy, but stocks are not excessive for this time of year.

Bayos, per ctl.....	\$3.25 @3.45
Blackeyes	3.15 @3.25
Cranberry Beans	4.70 @5.00
Horse Beans	2.35 @2.50
Small Whites	5.15 @5.35
Large Whites	4.65 @4.80
Limas	5.35 @5.45
Pink	Nominal
Red Kidneys	3.50 @3.60
Mexican Red	4.00 @4.25

SEEDS.

The seed business has settled down to a very quiet condition, with little demand for anything, and prices are almost entirely nominal on most lines.

Alfalfa	Nominal
Broomcorn seed, per ton....	\$27.00 @28.00
Brown Mustard, per lb.....	3¾c
Canary	6 @6¼c
Hemp	3c
Millet	2½ @2¾c
Timothy	Nominal
Yellow Mustard	Nominal

FLOUR.

Prices are firmly maintained at the same level as for some time past, the movement showing little fluctuation.

Cal. Family Extras.....	\$5.60 @6.00
Bakers' Extras	4.60 5.20
Superfine	3.90 @4.10
Oregon and Washington..	4.90

Hay and Feedstuffs.

HAY.

Arrivals are a little larger than last

week, though the market situation has not changed materially in any way. Business is very quiet, being limited to some extent by the expectation of larger supplies, but prices are still held very firmly. Some old hay is still held in the country, being held at higher prices than can be realized in this market. Dealers look for a drop as soon as the new hay begins to appear, though production is short in many districts. Fancy wheat hay in light bales is hard to find, and sells in small lots up to \$26.50, while ordinary wheat hay is very scarce. Little alfalfa is coming in just now, as local prices are below those in the country, though the new crop is expected very shortly.

No. 1 Wheat, or Wheat and Oat	\$19.00 @22.00
do No. 2	16.50 @19.00
Lower grades	15.50 @16.00
Tame Oats	16.00 @21.00
Wild Oats	14.00 @18.50
Alfalfa	12.50 @14.50
Stock Hay	9.00 @11.00
Straw, per bale.....	35 @ 80c

FEEDSTUFFS.

All descriptions of feed are firm, following the tendency of the grain market, and alfalfa meal is a little higher. The demand continues active.

Alfalfa Meal, per ton.....	\$22.00 @24.00
Bran, per ton	26.50 @28.00
Oilcake Meal	35.50 @36.50
Cocoonut Cake or Meal.....	Nominal
Cracked Corn	34.00 @35.00
Middlings	33.00 @34.00
Rolled Barley	30.00 @31.00
Rolled Oats	35.00 @36.00
Shorts	27.00 @28.00

Garden Truck.

VEGETABLES.

Onions are still weak, with ample supplies from many sources, and river stock is slightly lower. New reds so far find no great demand, the few that have arrived selling around 8¼c per lb. There is considerable old garlic lying around, which is offered at about 2c, while fancy new stock sells up to 6c. Asparagus continues to come in freely, and the quality has been rather poor for the last few days, but prices are better than a week ago, 60c being about the bottom price. Peas have been rather cheap, but show a little advance just now owing to a demand for shipment. Small lots of summer squash are coming in, and bring rather stiff prices, while string beans are offered freely at lower prices. Celery and cucumbers are a little higher, and rhubarb is steady at the old figures.

Onions: River, Yellow, ctl....	75c @1.00
Oregon, per ctl.....	\$1.00 @1.15
Australian	4.00 @4.50
Bermuda, crate	1.00 @1.15
Garlic, per lb.....	2 @ 6c
Cucumbers, per doz.....	75c @1.25
Cabbage, per ctl.....	50c
Carrots, per sack.....	75c
Cauliflower, per doz.....	40 @ 50c
Celery, crate	2.25 @2.50
Rhubarb, box	60 @1.25
Artichokes, crate	1.25 @1.75
Green Peppers, lb.....	15 @ 25c
Lettuce, crate	50c @1.00
Green Peas, lb.....	3 @ 5c
Asparagus, box	60c @1.50
String Beans, lb.....	10 @ 12½
Summer Squash, box.....	1.00 @1.50

POTATOES.

Everything in this line remains quiet and rather easy than otherwise, offerings from the south coast district being lower, though the best river and Oregon stock is held at a little advance. Sweet potatoes are scarce and firm. New potatoes are lower, with gradually increasing supplies, though the new river crop will be about a month late, and the early offerings from that section are expected to be of poor quality.

River Whites, ctl.....	50 @ 75c
Salinas, ctl.	75 @ 90c
Oregon, ctl.	50 @ 75c
Sweet Potatoes	3.00 @3.25
New Potatoes, lb.....	1½ @ 2¼c

Dairy Produce.

POULTRY.

Prices are still well maintained for everything in the chicken line, with a good demand and only moderate supplies, though there are usually plenty of Eastern hens coming in, and these show less firmness.

Large Broilers, per lb.....	29 @32 c
Small Broilers, per lb.....	32½ @33 c
Fryers, per lb.....	27 @29 c
Hens, extra, per lb.....	19 @20 c
Hens, large, per lb.....	18 @19 c
Small Hens, per lb.....	17 @18 c
Old Roosters, per lb.....	10 @12 c

Young Roosters, per lb.....	22 @25 c
Squabs, per doz.....	\$2.25 @ 2.50
Geese, per pair.....	1.50 @ 2.00
Ducks, doz.	4.00 @ 6.00
Turkeys, dressed	22 @24 c
do live	22 @23 c

BUTTER.

Prime firsts were quoted for a few days, but have again been dropped. Prices fluctuate only within narrow limits, supplies being fairly large, though an outside demand has caused a feeling of firmness at the moment.

Thurs. Fri. Sat. Mon. Tu. Wed.						
Extras	26	26	26	26½	26½	27
Firsts	25½	25½	25½	—	—	—
Prime						
Firsts	25	25	25	25	26	26

EGGS.

Selected pullets are a little lower than last week, but extras and firsts show no change whatever, being steady as quoted. Arrivals continue large, and the movement into storage keeps up as for some time past.

Thurs. Fri. Sat. Mon. Tu. Wed.						
Extras	19	19	19	19	19	19
Firsts	18	18	18	18	18	18
Selected						
Pullets.....	17	16½	16½	16½	16½	16½

CHEESE.

Flats and Y. A.'s have both developed a little more firmness, with only moderate offerings, and Y. A.'s are slightly higher. Monterey cheese is plentiful and easy at the old prices.

Fancy California Flats, per lb.....	14 c
New Young Americas, fancy.....	14½c
Monterey or Jack Cheese.....	14 @15 c

Deciduous Fruit.

Apples are still moving off fairly well, notwithstanding the increasing supplies of other fruit. First-class Newtown Pippins are getting rather scarce and bring better prices. Strawberries have been arriving in large quantities the last few days, mostly from nearby districts south of the city, and prices for all grades are on a comparatively low level, bringing out a lively demand. Further declines are expected, as there is more coming in than the market has absorbed. Cherries also are more plentiful, and prices are considerably lower, but the demand so far has been light.

Strawberries: Crate	85c @1.00
Longworth, chest	5.00 @ 7.00
Other varieties, chest.....	4.50 @ 6.00
Apples: Red, box	75c @1.00
Newtown Pippins, 4-tier..	1.25 @ 1.50
Cherries:	
Purple Guigne, drawer....	1.00 @ 1.50
White	50c @1.00
Purple Guigne, per lb.....	8 @ 12½

Dried Fruits.

So far no change has been made in country quotations, though the distributive market is picking up and there is a firmer feeling owing both to a better spot demand and prospects of a short yield. The greatest improvement is in prunes, which still find some demand for export, and the stock remaining in the country has been greatly reduced. The Santa Clara crop outlook is said to be poor, estimates being far below last year's production. The new apricot crop is known to be short in most places, and with the old crop well cleaned up values are very firm on what remains. Some packers are quoting future peaches on the same basis as last year, spot goods being quiet but fairly firm. Apples receive little attention, but are pretty steadily held. Raisins are moving a little better than formerly, though there is no very heavy demand. Eastern inquiry in all lines is increasing, with apparently small stocks, though there is some divergence of views on prices. The New York Journal of Commerce says: "There is a fair and growing demand for California fruits on small orders for stock required to meet the immediate needs of consumption, and this is taken as an indication that supplies held by retailers, at one time large, are cleaning up. More orders are being sent out to the Coast for prompt shipments, but buyers and sellers are apart in their views. The former are not willing, except in emergency cases, to pay the prices demanded by Coast holders, and these purveyors of California stock decline to make concessions. "In prunes on the spot a fair jobbing business is being done, the demand being chiefly for the large and small sizes, while the intermediate grades, 70s to 90s, are neglected. "California raisins on the spot are getting a little more attention in a small way, but there is little for forward ship-

ments from the Coast for either immediate or delayed shipment from buyers in this quarter. However, the Coast market appears to be firm, and spot quotations are reflecting the influence of Coast advices, though there was no quotable change yesterday.

"Apricots for forward shipment from the Coast is reported, and the tone of the f. o. b. as well as the spot market is firmer, though there has been no quotable advance in asking prices.

"Peaches are steady under limited offerings of spot goods from the Coast, and a quiet but steady demand for the fruit from the Eastern distributors. The largest season of consumption in this part of the country is still ahead, and based on the statistical situation here and in California sellers are looking for a material advance in prices within the next few weeks."

Evap. Apples, per lb.....	3 @ 4c
Apricots	Nominal
Figs: White	Nominal
Black	Nominal
Calimyrna	Nominal
Prunes: 4-size basis.....	2½ @ 4c
(Premium: 1c for 40s-50s; 2c for 30s-40s.)	
Peaches	3½ @ 4½c
Pears	4 @ 7 c
Raisins—	
Loose Muscatels in sweatbox	2¾c
Thompson's Seedless.....	5 c
Seedless Sultanias	3 @ 3½c

Citrus Fruits.

Orange shipments from southern California are keeping up to about 60 cars per day, and lemons about 10 cars. The navel crop is nearly all shipped, and this week will probably be the last of this variety. Prices range from \$2.65 to \$4.25 at Eastern auctions. Sweets and other varieties are in good demand, with prices around \$3 per box f. o. b. Valencias will soon be ready for shipment, but the crop will be short. Many growers are pushing their valencia trees with fertilizer and water, with the hope that the fruit that was frozen when green will take up plenty of juice and make marketable sizes.

Lemons are scarce, but prices are good, being from \$5 to \$6.25 per box, delivered.

Growers are optimistic concerning the outlook for next season's crop, as trees are blooming heavily. But whether the young fruit will stick on and mature good sizes is a problem that can be settled only as time passes.

Oranges at San Francisco are firm at a slight advance, with prices slightly higher. The principal new feature is the offering of late valencias. Lemons are scarce and very firm, with some fancy stock selling up to \$7.

Oranges, per box—

Valencia	\$4.00 @ 4.50
Navels, good to fancy.....	3.50 @ 4.25
Grapefruit, seedless	2.50 @ 5.00
Lemons: Fancy	6.50 @ 7.00
Choice	5.00 @ 6.00
Lemonettes	4.00 @ 4.50
Limes	5.00 @ 6.00

Nuts, Honey, Hops, Etc.

NUTS.

Prices remain nominal, with little stock on hand, either of almonds or walnuts. Some varieties of almonds are likely to be short, though the real extent of the loss is hard to ascertain at present.

Almonds—	
Nonpareils	17½c
I X L	16½c
Ne Plus Ultra.....	15½c
Drakes	12½c
Languedoc	11½c
Hardshells	8 c
Walnuts, 1912 crop—	
Softshell No. 1.....	16 @16½c
Hardshell No. 1.....	15 @15½c
No. 2	10½c
Budded	17 c

HONEY.

Local business is rather quiet, though anything of fancy grade finds a fair demand. Such stock, however, is scarce, with little coming in, and the lower grades move slowly.

Comb, white	15 @16 c
Amber	11 @12 c
Dark	9 @10 c
Extracted, white	8 @10 c
Amber	6½ @ 7 c
Off Grades	5 @ 6 c

BEESEWAX.

Local supplies are light and firmly held, though there is not much movement at the moment.

Light	30 @31 c
Dark	29 @30 c

HOPS.

There is only a little of the old crop left, and buyers are not taking much interest just now, while little has yet been done on the new crop.

1912 crop12½ @ 18 c
1913 contracts13 @ 15 c

Live Stock.

Prices for good finished stock remain firm as last quoted. A good many grass-fed cattle are being shipped in, however, and such stock sells somewhat below the regular prices, shorn sheep also being about ½ to ¾c under the former quotations.

Steers: No. 1 7½ @ 7¾c
No. 2 7 @ 7¼c
Cows and Heifers: No. 1.... 6½ @ 6¾c

No. 2 5¾ @ 6¼c
(Grass cattle, ½c less.)
Bulls and Stags..... 2½ @ 4½c
Calves: Light 7 @ 7½c
Medium 6½ @ 7 c
Heavy 5 @ 6 c
Hogs: Grain-fed, heavy..... 8 @ 8¼c
150 to 250 lbs..... 8¼ @ 8½c
100 to 150 lbs..... 8 @ 8¼c
Prime Wethers, unshorn.... 5½ @ 6 c
Ewes, unshorn 4½ @ 5 c
(Shorn sheep, ½ @ ¾c less.)
Lambs: Suckling 6 @ 6¼c

DRESSED MEATS

Steers 12 @ 12½c
Heifers 11 @ 11½c
Veal, large 10 @ 11 c
Small 12½ @ 13½c
Mutton: Wethers 11 @ 11½c
Ewes 10 @ 10½c
Suckling Lambs 13 @ 13½c
Dressed Hogs 12½ @ 13 c

WOOL.

Prices are still largely nominal, as the Eastern market is quiet, and local operators show some hesitation in buying the spring clips, only a few sales having been so far made.

Spring clip:
Southern mountain, free.. 9 @ 12 c
Northern, year's staple... 14 @ 16 c

HIDES.

Values have shown no quotable change for some time, though the movement is picking up a little, and the market shows a little more strength.

Heavy Steers, over 56 lbs. 14 c
Medium 13 c
Light Steers, under 48 lbs. 12 @ 13 c
Heavy Cows, over 50 lbs.. 12 @ 13 c
Light Cows, 30 to 50 lbs.. 13½c
Kip 14 @ 15½c
Veal 17 @ 18½c
Calf 17 @ 18½c

Dry—
Dry Hides 24 @ 25 c
Dry Kip, 10 to 15..... 24 @ 25 c
Dry Veal, 5 to 10..... 29 c
Dry Calf, 7 down..... 29 c

HORSES.

The prices brought at local auction sales are still rather lower than have been expected, much of the stock selling at \$15 to \$25 below normal quotations. In view of the high quality of some of the offerings, this is rather surprising, but is attributed partly to the fact that the best horses were lacking in flesh, while the lighter weights have been in rather excessive supply. The high price of feed may be partly to blame for the small interest taken by local buyers at present.

Heavy drafters, 1700 lbs. and over\$300@350
Light Drafters, 1500 to 1650... 225@250
Chunks, 1350 to 1500 lbs..... 200@225
Wagon Horses, 1250 to 1350... 150@175
Delivery Horses, 1050 to 1250... 100@125
Desirable Farm Mares..... 100

MULES.

1200 lbs.\$200@250
1100 lbs. 150@200
1000 lbs. 125@175
900 lbs. 75@125

The hop crop promises a bumper yield for the coast this season. In the various sections of California, Oregon and British Columbia, where hops are grown, the prospects are fine. Considerable of the crop has already been sold at prices ranging from 14 cents up.

PUBLISHER'S DEPARTMENT.

NEW BOOKS.

CO-OPERATION IN AGRICULTURE. By G. Harold Powell. Published by the Macmillan Company, 66 Fifth Ave., New York. Price \$1.50, net, per copy. This book is just published and contains over 300 pages of text, besides a number of halftone cuts; is cloth bound, and to one interested in co-operative farm movements, is well worth while. The author, Mr. Powell, is the manager of the great citrus co-operative marketing organization of southern California and is well qualified to write such a work. In the book Mr. Powell discusses the principles that underlie the organization and management of the American co-operative associations in agriculture, how to organize and conduct fruit, stock, dairy, irrigation and other kindred societies. He also discusses mutual insurance, telephones, and rural credit.

How to Keep Hens for Profit, by C. S. Valentine, is another new book of

about 300 pages, published also by the Macmillan company; price 50c. net. This book discusses the American class of fowls as a group, and goes into the details of producing chickens and eggs at a profit in an interesting way that makes it very readable and profitable.

THE FARMER OF TOMORROW, by F. I. Anderson, is still another new farm book published by the above company; price \$1.50 net. In this work the author has brought together in one volume a popular consideration of the two fundamental factors affecting the business of farming: first, the floor space of the American farmer in terms of land; second, the resources of the land itself in terms of soil fertility. In this second part the author attacks the accepted theory that land "wears out." He claims that soil is in-

destructible, immutable, that it may be abused but not destroyed, and claims that the latest scientific discoveries of the federal Bureau of Soils backs him in his theory. As a startlingly new idea, this one, which upsets previous teachings and accepted facts, will not fail to be read and discussed with great interest.

A word regarding "California Vegetables." The publisher is having troubles of his own. After weeks and weeks of waiting for Professor Wickson to complete the work, we are now compelled to wait on the printers. The book is now several months overdue, owing to no fault of the man who has to accept the complaints of those who have ordered copies in advance. However, the book is being printed and we will get it out at the earliest possible moment.

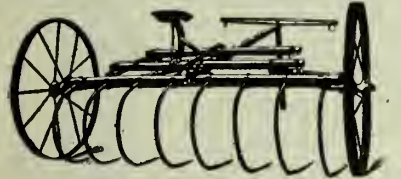
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MILWAUKEE MOWERS
AND RAKES.

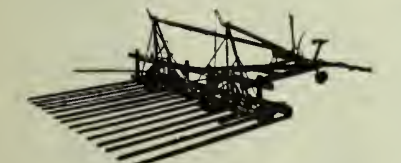
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IN THE SUB-IRRIGATED
RIVER SEDIMENT OF
RIVERGARDEN
FARMS

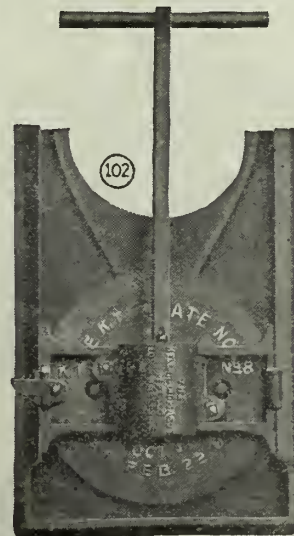
lying 21 miles along the bank of the Sacramento River, north of Woodland—one mile wide—35 feet deep—every foot of it good crops that yield big returns to the farmer. There is river and rail transportation—low freight rates—the best fruit and vegetable markets in the state, Sacramento and San Francisco—healthful climate—attractive terms.

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Intensive farming at **WEST SACRAMENTO** has already proven its possibilities in a demonstration field upon which more than 80 different crops are being raised this season. And various sections of **WEST SACRAMENTO** which were under cultivation before its reclamation have been among the most productive in California.

Intensive farming evenly distributes the work of the farmer over the year. It solves the labor problem—because the intensive farmer can do 90 per cent of his own work. It guarantees certain success by making loss through crop failure an impossibility. On a ten-acre farm, for example, instead of planting your entire acreage to pears, apples, peaches or garden truck, put in three acres of pears or apples and interplant them with strawberries. While the fruit trees are maturing the strawberries will have paid you a big profit. Put in another acre in diverse blackberries and loganberries, which should produce from 7 to 10 tons of berries the second year. Plant another acre to alfalfa. This will give you nine tons of hay a year, or enough for 400 days' feed for your horses and cows. Grow perennial crops on the remaining five acres. Tomatoes, if planted two feet apart and three and a half feet between the rows and trained on stakes, will yield from 14 to 18 tons per acre. And in the winter months, on the same land, you can harvest from two acres, more than 15 tons of green succulent vetch and oats or

Canadian field peas and oats—enough for 300 rations of food. Beans grown upon another acre should produce fully 35 sacks and two tons of bean straw—an ideal ration when balanced with alfalfa. When the beans are harvested plant Giant Spurry and Rape—ready to cut in less than eight weeks.

It is astonishing how much produce can be taken off an intensive farm during the year, and especially during the months when prices are highest. In this way 3 crops are actually on the same beds at the same time. Owing, however, to the difference in their vegetative growth—they mature one after another instead of at the same time. Thus with the genial warmth of the sun and the natural moisture of the soil all crops grow rapidly and the highest efficiency is constantly being obtained from the land at **WEST SACRAMENTO**.

WEST SACRAMENTO is just across the river from California's capital. Transportation, roads, telephone and power service—everything is installed. This splendid property is the best land "buy" in California today. Descriptive booklet will be sent upon request.

West Sacramento Company

FRED T. MOORE, MANAGER
Land Sales Department,
208 Nicolaus Building,
Sacramento, Cal.

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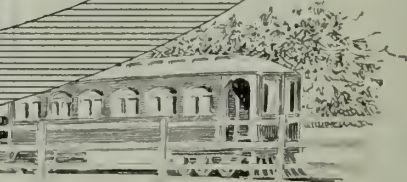
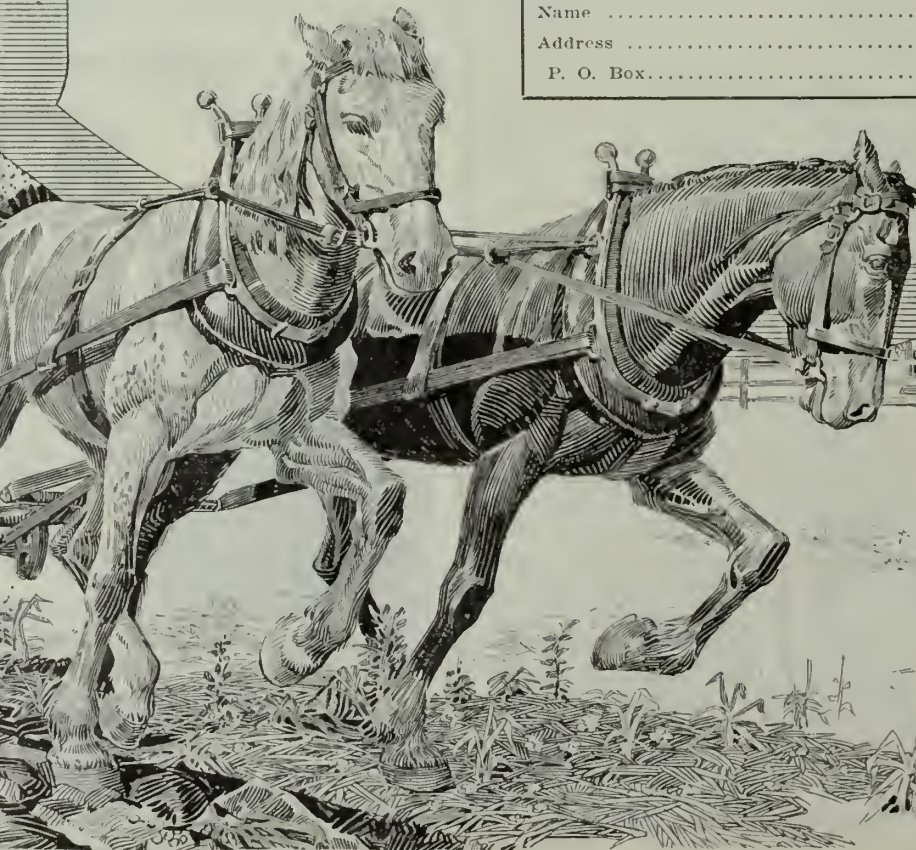
Fred T. Moore, Mgr. Land Sales Dept.,
West Sacramento Co.,
208 Nicolaus Bldg., Sacramento, Cal.:

Dear Sir: Kindly mail me your booklet, "Country Life in the City," telling all about your plan of model farms at West Sacramento.

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Address

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THE PACIFIC RURAL PRESS

Vol. LXXXV. No. 20.

SAN FRANCISCO, SATURDAY, MAY 17, 1913.

Forty-Third Year.

HOW SILOS HELP.

[Written for the PACIFIC RURAL PRESS by J. C. LOOMIS.]

The two most important needs of California dairymen today are better stock and better feeding, and it is safe to say that with our climate and soil the dairymen of the future will benefit greatly by the change that is so rapidly taking place in these two respects.

It is hard to say which of these two necessities are gaining favor the more rapidly, as they usually go hand in hand, as they should.

When speaking to the old-school California dairyman about better feeding, he will usually ask, "What better feed can you get than alfalfa?" and while it is readily admitted by everyone that alfalfa is the best single feed grown, it is this same alfalfa which has had a good deal to do in the way of retarding the progress of better feeding, for the simple reason that cows will make money out of alfalfa about the fastest of any single feed that can be grown for the same money, and also that until more progressive men entered the industry, not much experimenting was done to see whether alfalfa really was as profitable fed alone as it would be with the addition of other feeds.

Believing that a great many PRESS readers were interested in the best feeding methods for our California conditions, the writer visited a great many dairymen who have been doing other than straight alfalfa feeding, to find out what in their opinion was the one most economical feed to handle in connection with alfalfa hay, and almost invariably the answer would be corn ensilage; and, as these same dairymen usually had results to back up their statements, we are giving a review of some of their experiences.

As the three questions which seem to be foremost in regard to the silo for California, other than the benefit in the milk bucket, are: the cost of building and filling, the growing of corn to fill them, and the method of feeding, we are giving the results in the above-named order as we found them.

First, as to their cost. A great many who have only given the subject a passing thought seem to be under the impression that they are costly affairs, but this is a mistaken idea, for the cost is very small compared with other dairy equipment.

Most of those whom we visited are using the resaw and studded silos, and a great many did not use any roof, as they do not consider it necessary for our mild winters. Most of those in use averaged about 120 tons, this requiring a silo about 16 feet in diameter and 30 feet high; but one has to be governed by the number of cows kept to determine what size he wishes.

The studding is usually set 1 foot apart on the centers, and then a course of redwood resaw is put onto the studding inside. This is followed by a course of building paper and then another course of

resaw. The above lumber bill can easily be figured by anyone, and aside from the cement for a foundation is the only expense necessary for material. As to labor, a great many built their own with the help of a hired man or a rough carpenter.

By building in this way the cost, aside from labor, runs from \$85 upward, according to the size and to the cost of lumber in different sections.

"Not so bad," you say, "but what about filling them?" Now if there is any serious objection to the silo for the small dairyman, this is no doubt the worst one. We do not mean the cost of filling, but the cost of machinery to fill with. There are several ways, however, of overcoming this; first by buying a cutter for one's own use. In this case a smaller-sized cutter is usually bought, also a small portable gasoline engine which can be used for other purposes the balance of the year. The cutting in such cases is done by hand, but in the end this method makes more expensive ensilage than those later described. The cost of the above method

brings the ensilage up to about \$2 per ton in the silo, counting cost of raising the corn, labor of cutting, hauling, etc. Another method sometimes used is for a man who has a complete outfit to do custom work for his neighborhood, and where any amount is being put up, this may be preferable to the above method.

Still another way, and no doubt the best way, is one that is being practiced in a district in Tulare county. Here there are several dairymen located quite close to each other who all have silos, and consequently would have had to pay out considerable for individual outfits. Instead of that, however, they went in together and purchased a corn-cutter and binder, a gasoline engine, and an ensilage cutter. The total expense ran between \$1000 and \$1100, but being divided among several, it cut

(Continued on Page 566.)



A Cornfield Near Stockton.



Grand Champion Single Ear of Corn. Winner of \$1000 Kellogg Trophy, Fourth National Corn Exposition, Columbus, Ohio, 1911.

Pacific Rural Press

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E. J. WICKSON - - - - - Editor
FRANK HONEYWELL - - - - - Manager
W. H. SCHRADER - - - - - Adv. Manager
D. J. WHITNEY - - - - - Associate Editor

CALIFORNIA WEATHER RECORD.

The following rainfall and temperature record is furnished the PACIFIC RURAL PRESS by the United States Department of Agriculture Weather Bureau, at San Francisco, for the week ending at 5 p.m., May 13, 1913.

Stations.	Rainfall Data.			Temperature Data.	
	Past Week.	Seasonal to Date.	Normal to Date.	Maximum.	Minimum.
Eureka	1.34	34.10	43.66	64	30
Red Bluff .....	.36	17.78	24.00	74	48
Sacramento .....	.10	7.51	19.58	74	48
San Francisco .....	.24	11.56	21.73	64	50
San Jose .....	.04	5.61	16.34	72	42
Fresno .....	.00	5.88	9.33	80	48
Independence .....	.00	4.10	9.17	80	42
San Luis Obispo .....	.02	7.71	19.96	76	42
Los Angeles .....	.00	12.79	15.39	76	50
San Diego .....	.00	5.81	9.78	76	48

The Week.

Our fruit season has fully started, as we stated a week ago. That the season has started in an economic sense is shown in the fact that the dealers have begun to name prices for the coming crop of peaches, possibly also for other kinds of dried fruits. The setting of the fruit and moisture and frost conditions are evidently such that they can gauge fairly accurately what the crop will be and also gauge economic conditions so as to tell what the trade can pay and what the outcome will be with prices. Now the interesting thing about it all is that they are blissfully starting off with the same prices that they had last year, a year that there was a record-breaking crop. The prices were those that only a very large crop made quarter satisfactory to the grower. This year the crop is evidently going to be very much shorter, economic conditions throughout the country are excellent, the 1912 crop, large as it was, is nicely cleaned up, but the trade evidently is contented to have the price just what it was in 1912. We congratulate the growers of fruit throughout the State that there is practically no prospect of such prices enduring, that everything points toward the growers naming their own price, not only with peaches, but with practically every other dried fruit, a price that will be satisfactory to growers, fair to the middlemen and good for the consumer. The old regime has passed, the era of co-operation has come.

Covering the whole of the Sacramento valley, the northern part of the San Joaquin and the north of the bay counties is the California Cured Fruit Exchange, with fifteen constituent associations, making a body of growers whose action and influence together will be irresistible. Before many sales are made at the old prices and before much fruit is delivered by growers at these prices the operations of the Exchange will have to be taken into consideration. At the southern part of this territory lies the raisin district, where the California Raisin Exchange has just thor-

oughly established itself. The day after the capital stock for that had been sufficiently subscribed the market reports of the daily papers casually stated that "the raisin market is much stronger since the Raisin Exchange capital was fully subscribed." or words to that effect, and the market has had an upward tendency ever since. That is what growers' co-operation means. Last year the two apriecot associations in the south had the record of a disastrous year to live down and newly developed organizations to work with. This year they have their marketing systems well developed and a successful season to give them prestige. In the prune district the Farmers' Union is strong. Every dried fruit in the State is well looked after, every district has its organization. If these organizations say that last year's prices are to rule, we will say so also, but we will let them make price prophecies first.

Out in the World.

[BY THE EDITOR.]

[In our last issue Professor Wickson concluded his ear-seat harangue on alleged agricultural economies and below notes the sailing from the port of New York of the greatest bunch of argonauts which ever set out to seek the golden fleece of rural finance.—ASSOCIATE.]

We turn now from a maze of argumentation to the recital of a few growing facts concerning which we may dream somewhat later. We note, then, the gathering in New York of the Grand Jury of Inquiry into the Prosperity of Europe and its departure therefrom upon its unique errand.

First, the personnel of the expedition. There follows the names of those who go under the auspices of the Southern Commercial Congress, including those who had gone abroad earlier in anticipation of the work and to take part therein:

Personnel of American Commission.

Senator Dnnean U. Fletcher, Mrs. Fletcher and Miss Fletcher, Washington, D. C.
Senator Thomas P. Gore, Washington, D. C.
T. S. Southgate, Norfolk, Va.
Dr. Clarence J. Owens, Riverdale, Md.
Col. Harvie Jordan, Atlanta, Ga.
Dr. Kenyon L. Butterfield, Amherst, Mass.
Dr. John Lee Coulter, Washington, D. C.
Congressman Ralph W. Moss and Mrs. Moss, Washington, D. C.
Sevellon Brown, Washington, D. C.
Miss Eula B. Tate, Washington, D. C.
William E. Birgfeld, Washington, D. C.
Harry Snowden Stabler, Baltimore, Md.
LeRoy Hodges, Petersburg, Va.
D. F. Gore, Washington, D. C.
Dr. A. E. Canoe, Amherst, Mass.
Brooks Wingard, Washington, D. C.
Dr. E. H. Oliver, Saskatoon, Saskatchewan.
John G. Ruge and Mrs. Ruge, Apalachicola, Fla.
Addison G. Foster, Tacoma, Wash.
Prof. T. J. Brooks, Agricultural College, Miss.
J. C. Caldwell, Lakefield, Minn.
Charles Otis Gill, Hartland, Vt.
E. F. Woodside, Greenville, S. C.
J. Allen Smith and Mrs. Smith, Knoxville, Tenn.
Robert I. Woodside and Mrs. Woodside, Greenville, S. C.
C. W. Hillhouse, Sylvester, Ga.
Miss Louise Vincent, Athens, Ga.
Miss Emma Jordan, Atlanta, Ga.
William B. Hatch, Ypsilanti, Mich.
Clarence Ousley and Mrs. Ousley, Forth Worth, Texas.
Lionel Smith-Gordon, Toronto, Ontario.

Dr. Henry Marshall Tory, Edmonton, Alberta.
Prof. H. A. Morgan, Knoxville, Tenn.
M. V. Richards and Mrs. Richards, Washington, D. C.
Mrs. Henry Marshall Tory, Edmonton, Alberta.
Mrs. Julia C. Woodside, Baton Rouge, La.
John Sprunt Hill, Durham, N. C.
J. S. Williams and Mrs. Williams, Paris, Texas.
Robert L. Munee and Mrs. Munee, Cannonsburg, Pa.
Prof. Hector McPherson, Corvallis, Ore.
W. I. Diffenderfer and Mrs. Diffenderfer, Lebanon, Mo.
John Haslam and Mrs. Haslam, Regina, Saskatchewan.
Horanee Haslam, Regina, Saskatchewan.
Clarence Smith, San Francisco, Cal.
Francis W. Wozeneraft, Austin, Texas.
J. F. Marsh, Charleston, W. Va.
Ralph Metcalf, Tacoma, Wash.
Dr. David Starr Jordan, Stanford University.
Walter Webster, San Francisco, Cal.
G. N. Lauman, Ithaca, New York.
Joseph Edward Stubbs, University of Nevada.
R. P. Bass, Concord, N. H.
Edward Chapman, Old Lyme, Conn.
Mrs. Clara H. Waldo, Oregon.
H. L. Bridgman, Brooklyn, N. Y.
Charles Carroll, Ellieott City, Md.
J. Clyde Marquis, Philadelphia, Pa.
Dr. E. P. Fraser, Macon, Ga.
F. J. H. Von Engelken, Palatka, Fla.
John L. Kaul, Birmingham, Ala.
Dan G. Hughes, Danville, Ga.
C. C. Mitchell, Millbrook, N. Y.
James G. McSparran, Furniss, Pa.
Charles B. Austin, Austin, Texas.
Robert Van Cortlandt, New York City.
James K. Thompson, Muskogee, Okla.
W. M. Brown, Ashland county, Ohio.
John Cunningham, Gambier, Ohio.
W. W. Dexter and Mrs. Dexter, Houston, Texas.
S. A. Lindsay, Tyler, Texas.
A. E. Tate, High Point, N. C.
Joseph Francolini, New York City.
P. L. A. Ferguson, Minneapolis, Minn.
J. E. Earnsworth, Dallas, Texas.
Mrs. Sarah McMillan, Hoquiam, Wash.
Clark G. Black and Mrs. Black, Pomeroy, Wash.
H. G. Starkweather, Milwaukee, Ore.
R. W. Dickenson, Castlewood, Va.
C. F. Bailey, Toronto, Ontario.
Frank C. Page, North Carolina.
Alfred B. Moore, Edmonton, Alberta.
Robert A. Ware and Mrs. Ware, Boston, Mass.
W. C. Chase, Woodstock, Va.
W. P. Fain, Atlanta, Ga.
Gordon Jones, Denver, Colo.
Lt. Gov. E. L. Daughdrige, Raleigh, N. C.
Mrs. Charles E. Lahman, Vinita, Okla.
Albert E. Roberts, New York.
Dr. Lillian W. Johnson, Memphis, Tenn.
Miss Ernestine Noa, Chattanooga, Tenn.
M. E. Thrailkill, Columbus, Ohio.
A. B. Hulit, Chicago, Ill.
E. W. Barrett and Mrs. Barrett, Birmingham, Ala.
Robert Glendinning and Mrs. Glendinning, Salt Lake City, Utah.
Col. H. Weinstock, Sacramento, Cal.
Prof. E. J. Wickson and Mrs. Wickson, Berkeley, Cal.
George Woodruff, Joliet, Ill.
J. Howard Eager, Baltimore, Md.
F. W. Monnish, Tuscaloosa, Ala.
Louise Fletcher Kemp, Washington, D. C.
J. F. Jackson, Richmond, Va.
Arthur J. Morris, Norfolk, Va.
Garland P. Miller, St. Louis, Mo.

A. Bertig, Paragould, Ark.
D. P. Hogan and Mrs. Hogan, Massena, Iowa.
Edward Hart, New York City.
T. B. Thackston, Cedar Springs, S. C.
E. W. Churchill, Napa, Cal.
Francis G. Landon, New York.
Col. W. S. Witham, Atlanta, Ga.

Permanent Organization.

Aside from the business of personal preparations for a voyage, the people above mentioned were kept active on the day of their assembling in New York with the question of permanent organization and future work. Such an organization was unanimously decided upon and its work thus marked out:

The scope of its investigation will embrace an examination of the methods employed by progressive agricultural communities in finance, in production, and in marketing. Special note will be taken of the application of the co-operative systems to finance production and distribution; the parts played respectively in the promotion of agriculture by the governments and by voluntary organizations of the agricultural classes; the effect of co-operative action upon social conditions in rural communities, and the relation of the cost of living to the business organization of the food-producing classes.

Following its three months' investigation, the commission will present to Congress, to the House of Governors, to the various State Legislatures, and to the governments of all affiliated countries, an exhaustive report and a specific legislative program as a plan of action.

The commission further plans to conduct a thorough educational campaign through the press, and through publications interpreting the co-operative systems, and to gather authentic data as a permanent library bearing on co-operative agricultural systems.

The permanent organization will be officered for the coming year as follows: Senator D. U. Fletcher of Florida, chairman; Dr. Kenyon L. Butterfield of Massachusetts, H. Weinstock of California, Thomas S. Southgate of Virginia, vice-chairmen; Dr. Clarence J. Owens of Maryland, director general; Col. Harvey Jordan of Georgia, secretary-treasurer.

Social Attention.

The Commission received many social courtesies upon its assembling in New York. The public is evidently minded to regard it very attentively and to wish it well. The most notable favor shown to the body by an individual was a very elaborate banquet the evening before sailing, at which Mr. and Mrs. E. N. Breitung were host and hostess, and the fact that so many women are included in the body, as shown by the list which we print above, added many graces to the occasion. Mr. Breitung is deeply interested in the work of the Commission, having studied the subject of credit and land banks, and agricultural co-operation generally in France, under Ambassador Herriek a year ago, and he tendered his dinner to speed the parting Commission accordingly.

The only sadness which existed was invisible. It was the apprehension in the minds of many that it might be the last square meal which they could properly handle for so these many days.

Queries and Replies.

Querists must submit full names and addresses.

Thinning Peaches.

To the Editor: I have about ten acres of five-year-old peaches that seem to be setting too heav-

ily. Would you please tell me through your valuable paper the best time to thin, or will they thin themselves?—H. B. G., Montecito.

The peaches will not thin themselves, and somebody will have to do any thinning that is done. The best time to thin is after the fruit that has not been pollinated has dropped or showed that it will not develop; also after all danger of frost injury is passed. In other words, wait until you are fairly sure what amount of fruit nature intends to mature, and then get to work. The benefits of thinning cannot be too strongly stated, as the trees will average a greater tonnage of food when well thinned than when left overloaded. The tonnage of unthinned peaches may be greater, but when the weight of the pits is subtracted, the weight of the meat will very probably be greater on the thinned trees. The quality will be greatly superior, the total amount of labor used much less, the value of the fruit much greater, and the injury to tree and soil much less, as there is a big strain on a tree to mature a lot of peach pits. We would strongly advise you to get a copy of "California Fruits," by Prof. Wickson, to get details on this matter. Thinning this year will probably also be more necessary than ordinary years. Everybody should do it.

Nut Literature—Whitewash.

To the Editor: Please let me know the most approved mixture for whitewash for young trees. Professor Wickson has a book on nut trees, etc., I hear. Let me know about that, too.—P. N. A., Woodland.

You will find elsewhere in these columns a good receipt for a whitewash for young trees, but since there are a number of inquiries, we will give another receipt, which, however, will not have the protection against rodents that a whitewash containing spoiled tallow has. The following whitewash is very good for every purpose where an attractive finish and great durability is desired: To 25 pounds of lime, whole, slacking with 6 gallons of water, add 6 pounds of common salt and 1½ pounds of brown sugar. Stir and mix well and allow to cool. When cool, stir in 1 ounce of ultramarine blue (unnecessary for tree use). Then add two gallons of water and sprinkle and stir in 2 pounds of portland cement. If two coats are to be applied, add another gallon of water. Strain for work on smooth surfaces.

Professor Wickson's book, "California Fruits," contains a full description of methods of culture of all California fruits and nuts. It is the authority on the subject, is well illustrated, and contains 600 pages. The cost is \$3, postage paid from this office. There is a fine bulletin of the Agricultural Experiment Station, Berkeley, on walnut culture, but the issue is exhausted.

Non-Bearing Walnut.

To the Editor: Would you please tell me through the columns of your paper what to do for an English walnut tree that does not bear, but goes all to leaves?—J. E. H., Santa Ana.

Walnuts are often very slow in coming into bearing, and if the tree that you speak of is young, possibly that is the reason that it does not bear, especially if it is a seedling. The probability is that it is a seedling that never will be much good as a producer, and the only thing left is to bud or graft it over to a prolific standard variety. If you find a budder who has bud wood left he might be able to bud your tree now or even a month later, otherwise have it budded in September or grafted in winter. It will more than pay to have any common seedling top worked over to some fine heavy-bearing variety, whether in grove or dooryard, and the non-bearing habit

of the tree you speak of should only give you a good excuse for doing something you might well do with any seedling anywhere.

Cane Borer in Roses.

To the Editor: The enclosed rose-shoot wilted on the plant. I expect from the work of a tiny borer that has girdled it a few times just under the bark. I fear that to make a success of raising roses for cut flowers I must keep these little fellows out of the bushes. Can you tell me how to prevent them? A similar insect works on tender blackberry shoots, but does no especial harm there.—J. A. B., Paradise, Cal.

This should not prevent you from making a success with roses if you could succeed in the business otherwise. It is the work of the raspberry horntail, or cane-borer. The eggs are laid in the canes of berries and roses near the tips, and the larvae eat their way downward. The insect lives in the wild rose also, and all these around a place should be cleaned up. Whenever you see signs of the insects in the wilting of the canes or shoots, pinch off the part where the eggs are, or cut off the canes. A thorough job will lessen danger the following year. This will answer A. F. U., San Jose.

Frost on Walnuts.

To the Editor: A year ago last February I had five acres set out in English walnuts grafted on one-year-old black walnut roots. The trees were doing nicely this year; the shoots were coming out, also the leaves. May 1, 2, and 3 they had heavy frosts, which caused the leaves to turn black. I cut off the parts affected and wish to enquire how much damage has the tree suffered? Will the leaves come out again this year, and has this setback damaged the trees to such an extent that they will never amount to much? Please reply or answer through your paper.—Subscriber, San Francisco.

Without knowing more about the severity of the frost, it is impossible to say what the injury has done. If it is only the leaves that were killed, it is most probable that the tree will pick up very strongly again. If the new wood has been killed, the injury will be considerable, but yet the trees may fully recover. In case of frost injury on any tree, it is always wise to wait and see the extent of the injury before cutting back, as you may cut off too much and you may cut off too little. Trees always seem to do better when they decide themselves just how much wood the frost has killed, and after you determine what their decision is, you can and should cut off dead wood without unnecessary delay. The frosts of this spring should not have been serious enough to cause especial injury to walnut trees in the bay counties where we suppose your grove is located. However, frosts of no great intensity often play havoc with walnut trees that have suffered from lack of moisture, and last year was a very dry year. Without more details no one can say what the injury has been. You will have to wait and see by the trees themselves, anyway; but don't be in such a hurry next time in cutting back after frosts.

Identification of Walnuts

To the Editor: I am considering going into the walnut-growing business on a commercial scale and desire to obtain information on how to identify the various varieties. I am a forester and understand professional terms as applied to trees. I have your book and find it excellent reading about California fruits.—D. G. K., San Francisco.

The matter of walnut varieties is taken up in detail in the bulletin of the University of California on walnut culture, now out of print. You can get a copy to read at any public library, or you could call at our office and look over ours.

Sulphuring for Vine Mildew.

[This is the time to sulphur vines against mildew. The following by Prof. Frederick T. Bioletti, Viticulturist of the University of California, will explain in detail the methods that should be followed. We would especially call attention to the benefit of using a sulphuring machine. A friend of ours, after hearing Prof. Bioletti recommend one at a Farmers' Institute several years ago, when they were first introduced, invested in one, and told us that he saved the price in one year in the cost of sulphur and the labor of putting it on, besides doing a job that was vastly superior to the shaker method.]

The oidium or powdery mildew of the vine occurs in every grape-growing region of California. In the cooler and moister regions it does serious damage nearly every year unless it is controlled; in some of the warmer and drier regions it is only rarely harmful. The disease can be controlled perfectly in nearly all cases by the proper application of the right kind of sulphur. The proper application requires attention to the number of sulphurings, the season, time of day and weather conditions, and to the amount of sulphur and the thoroughness of its distribution.

Number.—In most parts of California three sulphurings are sufficient. In many, one or two afford perfect protection (dry interior). In a few, as many as five may be needed (fog belt along the coast).

Season.—Where only one application is made, the vines should be sulphured while in blossom. Where three are needed, the first should be when the shoots average about twelve inches in length; the second during blossoming, and the third when the berries are the size of peas. In the fog belt, sulphuring every three or four weeks until the grapes commence to ripen may be necessary.

Time of Day.—Any time of day is suitable, providing the atmosphere and moisture conditions are favorable. In a heavy wind the sulphur cannot be placed where needed; if the vines are very wet, the distribution is defective. A gentle breeze is an aid, and a slight moisture on the leaves is no objection.

Weather.—The warmer the air the more effectively does the sulphur work. When too cold, it does little good, but the mildew grows little. When too hot (shade temperature over 100° F.) the sulphur may burn the leaves and do as much harm as the mildew. At these high temperatures the air is usually too dry for the mildew to grow, and in any case the mildew ought to be eradicated earlier in the season than these temperatures usually occur. Rain or prolonged cold winds after sulphuring, without an intermediate period of warm weather, may remove the sulphur before it has done its work and the sulphuring must be repeated.

Amount of Sulphur.—There is practically no possibility of using too little sulphur, providing we use the right kind and distribute it properly. The amount needed will depend on the method of application, and varies from five or ten pounds per acre with an efficient dust blower to seven or fifty pounds per acre with an ordinary tin sulphur shaker, according to the size of the vines.

Distribution.—The sulphur must be applied so that there will be one or more particles of sulphur on every square eighth of an inch on every surface of every leaf of every vine in the whole vineyard. This can be done easily with a good dust sprayer, using good sulphur. If a single vine is missed it may grow a crop of mildew that will produce spores to seed the whole vineyard later.

Tests of Sulphur.—Only the finest of sulphur is of value for this purpose. Its purity is of little importance. Coarse sulphur, even if pure, is valueless. Any sulphur which feels gritty in the palm of the hand should be rejected. The more bulky the sulphur, the finer it is, whether ground or sublimed. In cases of doubt samples sent to the College of Agriculture at Berkeley will be examined free.

Cost.—Seven and a half pounds of sulphur on the average will cover an acre of vines once with the most efficient dust sprayer; thirty pounds will be needed with a hand shaker. A man can sulphur one acre per hour on the average. The cost

will vary from about 50 cents per acre to \$2.50 or higher, according to the number of sulphurings and the method of application. The finest sulphur and the best machines not only give the best results but give them more cheaply.

No other method of control is as effective or as cheap and convenient as sulphuring. Some which are recommended are useless.

CLOVER AND COVER CROP.

To the Editor: Enclosed please find sample of a clover which grows in my orchard in a few spots. I should like to know if it is just ordinary bur clover or has it another name, or is it some other kind of clover? I cannot get any kind of vetches to catch, though I have inoculated the soil. I thought of using this clover instead of the vetches to plow under. Would a mixture of oats and clover have the desired effect—that of building up the soil in my cherry orchard? Can this clover be purchased from local seed men, and also how many pounds to the acre for a cover crop?—H. S., Sebastopol.

We forwarded the sample to Prof. H. M. Hall, Botanist at the University of California, for identification, and received the following reply: "The clover submitted is the genuine bur clover, the seed of which may be purchased from any of the larger seed houses. The seedsmen recommend the use of all the way from 12 to 20 pounds of hulled seed to the acre, while Prof. C. V. Piper, of the Department of Agriculture at Washington, who has made a study of green manure plants for use in California orchards, recommends 20 pounds. Your correspondent would do well to obtain a copy of Mr. Piper's bulletin on 'Orchard Green Manure Crops in California.' It was published by the Bureau of Plant Industry, Bulletin No. 190 (price 10 cents)."

For the other matters would say there would be no occasion for planting vetch if the bur clover grows well, for the bur clover builds up the soil and gathers nitrogen from the air in just the way that the vetch does. Each soil had better have the cover crop that is best fitted for it, and the bur clover generally grows best on a different soil than the vetch, usually a heavier soil. If the vetch were tried on a lighter soil than the clover and yet did not grow, even after being inoculated with the proper bacteria, there is a strong probability that the soil is deficient in lime and that a good liming with air-slacked or hydrated lime would enable it to catch nicely and would also do lots of good to the trees.

If you can get a mixture of clover and oats to grow nicely it will build up the soil well, though not as well as would the same weight of clover or vetch alone. Barley or rye could be substituted for oats and a mixture of vetch and rye is one of the most common combinations for cover crops. Still, clover or vetch alone is mostly to be preferred. Naturally, the time to sow these is in the fall after the rains have started.

WHITEWASH AND BORERS.

To the Editor: I noticed in your issue of April 26 an inquiry regarding tree protectors and whitewash for young trees set out this last winter. You recommend whitewash. Now will whitewash, if properly mixed, protect the body of the tree from ground-squirrels and rabbits? What is the proper mixture to use? Also, when do borers work, on what part of the tree, and what is the remedy? My orchard contains apple, pear, and prune trees.—Fruit Grower, Napa.

There are receipts galore for whitewash. Supposing that you do not want the government receipt, which has often been given here, and is

perhaps too elaborate for you, we would suggest one made of 30 pounds of lime, 4 pounds of tallow, 5 pounds of salt; add the salt to the water used in slaking the lime, stir in the tallow while the slaking is in progress and hot, and then add water to thin the wash so that it will work well with the brush. Where there is danger of squirrels or rabbits being attracted to gnawing the bark by salt, the salt may be omitted and the durability of the wash can be increased simply by the addition of tallow, and for the repelling of rabbits it is required that this grease be as rank and odorous as possible. It will then keep squirrels and rabbits away all right. This whitewash is also of value in keeping away the flat-headed apple-borer, to which you refer. The effect of the whitewash comes in preventing sunburn, which gives the borer an opportunity to get beneath the bark. It might get under, anyway, and then it will have to be dug out. It can be detected by a discoloration of the bark, or from gum and waste at the entrance to their burrows. They work largely near the ground. The most damage is done in the late spring and early to middle summer. A preparation not a whitewash which can be applied to the trees to keep out borers is made by reducing soft soap to the consistence of paint by the addition of a strong solution of washing soda in water. This can be applied now, also in July and August.

SLUGS IN GARDEN.

To the Editor: Can you advise me through the Press how I can get rid of snails? I have tried ashes, paris green, and lime, but neither does any good.—A. A. M., Napa.

The disgusting looking creatures you evidently speak of are correctly termed slugs rather than snails, which carry a shell around with them. When barriers of lime, ashes, etc., are ineffective, traps consisting of pieces of board, sacking and similar materials placed about the field prove inviting to the slugs. They collect here and by going over the field in the early morning they may be put into a salt-water solution or otherwise destroyed. Arsenical sprays applied with an underspray nozzle to the lower surface of the leaves will help control the slugs. Poison bran mash, consisting of 16 pounds of coarse bran, 2 quarts of cheap syrup, and enough warm water to make a coarse mash, is very good for cutworms and should be equally effective for slugs. It should be placed in small heaps about the plants to be protected. Cabbage leaves dipped in grease drippings and placed about the fields also prove attractive bait for the slugs, which may then be collected there. If a person has a taste for poultry, the keeping of a few ducks may solve the slug problem without further bother.

MANUFACTURING OPERATIONS.

To the Editor: Can you give me any information on the machinery used in making different products from potatoes, principally starch, glucose, and alcohol, and where it can be purchased? What is the process for canning potatoes and where can I get any information on it and the machinery used? Can you tell me on how large a scale it is necessary to operate on in manufacturing products from potatoes?—E. L., Oakland.

We do not carry data on such technical questions that have more to do with the manufacturer than the farmer. The Department of Commerce, Washington, D. C., should be able to give you the information you desire, and we would refer others seeking information on technical questions that relate to manufacturing and such matters to the same source.

Pruning Frosted Trees.

Frosts such as occurred in the citrus districts last January are so very unusual that growers whose trees were hurt hardly know how to treat them now that growth is well started in the spring, so we wrote to several persons who had the facilities for observation and experience with trees to make their conclusions of value. Some of the replies we give below. It was understood that anything in the replies would be considered as opinions rather than something put forward as gospel truth by the correspondents. The consensus of opinion appears overwhelmingly in favor of going slow in the cutting, whether the injury was extensive or not. In case of doubt, don't.

We will start with the ideas from Earle Mills, Horticultural Commissioner of Butte county, the most northern of the long-established citrus districts, even though frost injury was not as bad there as in districts with more tender trees. Commissioner Mills writes:

"From your letter I would judge you desired an opinion relative to trees which were badly frosted; that is, those killed back to the crotch or thereabouts. Earlier in the season it was impossible to determine definitely the exact point that frost injury ceased. Trees that six weeks ago were trimmed back to what appeared to be the live wood, have died below the cut. Within the last three weeks new growth has appeared in such quantity that one may now cut back (if deemed advisable) with a definite knowledge of frost injury.

"Removal of dead top and thinning out of sprouts is hardly advisable at the present time, and certainly not necessary before the middle of June. Injury resulting from retention of dead top is largely compensated for by the protection the trunk would receive from sun-scald; unless the trunks were whitewashed at the time of cutting off.

"As the root system was not injured, far more sap will be available for elaboration than the meager top will utilize. It would be rather a doubtful policy at the present time to thin out and thus curtail elaboration of sap in order that selected sprouts might grow somewhat more vigorously.

"We should not lose sight of the fact that trees as severely injured as I mention are necessarily in exposed situations, and although the selection of individual sprouts would be theoretically justified a little later in the season, that compact top might effectually resist a mild frost next winter, whereas isolated sprouts would succumb."

Better Lose the Shears.

In Riverside county there is the opportunity of observation of a wide range of groves from those hardly affected at all to those quite badly hurt. In practically every stage of injury, Horticultural Commissioner R. P. Cundiff comes to the same general opinion that the pruning had better be deferred almost to the extent of deciding that it would be better to lose the shears for a full year. His conclusions follow:

"In regard to the pruning of frosted orange trees, I will say that there are so many matters to be taken into consideration upon this question that we find it somewhat difficult to arrive at a definite method of procedure. The severity of damage as well as the particular form of injury to the tree are factors which we believe should be taken into consideration in the matter of pruning.

"In cases where the branches were severely killed back by the cold, we have advised no pruning until another season, for the following reason: The dying back of these injured limbs has been gradual, so much so that it has been difficult, if not impossible, to know just how much of the injured wood to remove.

"I have noticed in some instances where pruning of such affected trees has been done early, that the frozen branches have continued to die back considerably below where they were cut off, thus necessitating a later pruning. This we believe has acted as an additional shock to such trees.

"In the Riverside district a large per cent of our orange trees were defoliated, but without

any serious injury to the wood. These trees are putting out a nice growth of foliage and promise to bear a partial crop of fruit this season. With such trees we believe the pruning should be deferred until next season, as such trees are making a hard fight to build up their wasted energies. Any cutting back or pruning of such trees we believe would have a probable tendency to check such development.

"In summing up our conclusions as to pruning, will say that we are of the opinion that in most cases with injured orange trees it will be best for the owners of such groves to lose their pruning shears and not be able to find them for the remainder of this year. In some instances pruning, if judiciously done, would doubtless be an advantage, but we believe if indulged in generally by the owners of frosted groves during the present year, more injury will result than benefit."

Santa Barbara Lucky.

Santa Barbara seems to have suffered so little injury from the cold spell of the first of the year that Horticultural Commissioner Beers has had little chance to decide on the best practice to pursue from experiences in his own county. Commissioner Beers states:

"I beg to advise you that the frost damaged very few of our trees. There is but one orchard that was seriously injured, and that was severely pruned back because it was in a condition of excessive amount of wood and the owner felt it was a good time to prune it very severely. You will see, then, that our experience is not of enough importance to make our judgment valuable in any way whatever."

Short But Meaty.

S. A. Pease, Horticultural Commissioner of San Bernardino county, does not go much into detail, but gives several concise and direct suggestions as to the best method to pursue. He states:

"Replying to your letter, will say my advice to orchardists is to wait until the trees have had time to show how much vitality there is in the individual tree, and until the leaves are well started, and then cut back to good strong growth. In cases where limbs are frozen back, good judgment should be used to properly balance the tree. If a tree is frozen badly, so that it does not put out a strong growth anywhere, better dig it out and replace with a new tree."

In Ventura County.

From R. S. Vaile, commissioner of Ventura county, we get the following:

"I have very little, if anything, to add to this much-discussed subject. I do believe that the groves should be given every cultural advantage at this time in order to enable them to hold the new growth and bloom which is now coming upon them.

"In this district the great majority of our trees, especially oranges, are coming out in beautiful new foliage and are for the most part heavy with bloom, so that no pruning has been done upon them, and I believe that all pruning done will be in cutting back the too vigorous growth.

"I do not think that a branch badly cracked, even though it may put out some shoots, is worth saving. A new healthy branch from lower down would, in my judgment, overtake it and produce a better tree. It seems to me that the problem is one of individual trees. Where strong growth may be gotten without cutting back, the trees should be left as they are; but I am not in favor of trying to make a split or badly cracked branch part of the future tree.

"In case of young orange trees I would gladly sacrifice a foot, or even more, of the main trunk in order to cut below badly checked parts of the bark. I believe that a sucker anywhere above the bud can be trained in a short time into a strong, healthy tree. I am also of the opinion that even though the trees would start only below the bud, it would pay to leave them in and bud on to the new shoot rather than setting in new trees.

"These are about all of the general principles that I can suggest, but as I have already said, more of the work seems to me to be individual tree work."

MILDEW.

To the Editor: Enclosed are a few leaves from some of my apple trees. I would like to know what is the matter with them and what is the remedy. They seem to be covered with a white substance, turn dark brown, and dry up. The trees look as if they were dying. I have about 100 Ben Davis trees affected this way. The trees are large, and all the foliage is affected. I never saw anything of this nature until this spring. A few young leaves on some Baldwin trees look the same way. The trees bore heavily last year, so have no apples this year. I have been a subscriber to your paper for almost a quarter of a century, so thought I would like to ask you about my trees.—Mrs. C. L. H., Middletown, Lake county.

This is just about as bad an attack of mildew as one ever sees. It is a very common trouble on apples, but is worse some seasons than others. Usually it is worst in moist seasons and in locations where there is more moisture in the air than in locations with a dry atmosphere. There is no thoroughly satisfactory method of control, but the following mixture, or similar mixtures, have been used with a fair degree of success early in the season:

Caustic soda	12 pounds
Sulphur	50 pounds
Water	200 gallons

Bring the soda to a boil in a kettle of water, then add the sulphur slowly, and boil with frequent stirring for about an hour. Strain the mixture into the spray tank and make up to 200 gallons. Caustic potash may be used instead of soda. It may perhaps be too late to get very good results with the spray this year. In the Pajaro valley a more elaborate iron sulphide mixture is used, which is on the market as a commercial preparation. From what you state, it would be impossible to say why the trees do not bear this year. Possibly they are just resting up from last year's effort, which combined with the mildew weakened them so that they could not set a crop.

FERTILIZING ALMONDS.

To the Editor: Kindly state what elements are taken from the soil by almonds and the best mixture of the same in fertilizers to apply. Same for pears.—V. C., Orangevale.

We could give the amount of plant food taken from the soil by almonds, pears, or anything else, and yet not indicate in the least the kind of fertilization that would be most beneficial for the trees. The matter of fertilization depends with nearly all crops, 99 per cent upon the nature of the soil and various soil and climatic conditions, and 1 per cent upon what the crops remove, although it is true that the materials removed by the crop give a suggestion of value in making up fertilizers. A five-ton crop of pears will take out about 5 pounds of nitrogen, 2 pounds of phosphoric acid, and 10 pounds of potash. We have not at hand what almonds remove, but a fair crop of almonds would take out about the same. You might get enough nitrogen in the cover crop that nature brings up with the fall rains to make fertilization with this unnecessary, or your cover crop of vetch or peas, or some such legume might do the same thing. Also your soil might be so rich in potash that further fertilization for a long time would be unnecessary; also phosphoric acid. It is all a matter of the soil and one would have to know the soil and the condition of the trees before he could say how much plant food to return to the soil and in what form it should be returned. If your trees are doing excellent work, all you probably need

to do is to see that there is plenty of green stuff to plow in every spring and that the orchard is well handled, and you can put off fertilization until the trees show signs of needing something. Whenever they have good ears and yet do not thrive as they should, fertilization may be started. When good at all, a much heavier dose of food than the crop removes is very likely to be more than repaid. Try some sulphate of potash, superphosphate, or steamed bone, since your type of

soil probably would make the latter a better carrier of phosphoric acid than superphosphate; some ammonia sulphate, tankage, complete fertilizer, or various other combinations which a fertilizer company will suggest when they know your conditions. It is impossible to give any composition for fertilizer without knowing what your soil is like and how your trees are acting. With that knowledge we can suggest plans for fertilization.

Why Silos are Good.

[By OUR ASSOCIATE EDITOR.]

The present is the time to plant crops for ensilage, even if the silos themselves will be built later, and the great increase in the number of silos demonstrates the growing popularity of this aid to dairying. Elsewhere will be found an excellent account of the methods of handling ensilage, and as a supplement to this we run over briefly here the benefits in general of having and using a silo on a dairy ranch.

The fundamental benefit comes in the fact that it provides green food for the cows. All cattle rejoice in soft succulent feeds; that is one reason that all kinds of stock come out so well in the spring. It might also be fair to say that with a good silo and the right kinds of crops there is something like a perpetual spring on the dairy. (We speak of the season, not the kind of spring related to a well.) The great benefits of having a continuous supply of green palatable feed for the cattle are so apparent to every stockman that the extra thrift of the cattle from having green feed need not be dwelt upon.

A second great benefit comes in the better combination of food materials resulting from having a fine lot of ensilage. Everyone knows that there is less waste with a combination of feeds, both in the amount eaten and the amount digested, than in a single feed, no matter whether fed dry or green, and ensilage can as well be made of other material than alfalfa as not. Besides this, alfalfa is a feed chemically out of proportion for the best effect on cattle, while the common kinds of materials from which ensilage is made are of such a radically opposite nature that they and alfalfa balance each other in ideal fashion. Alfalfa hay and corn silage is an unbeatable combination for palatability, digestibility, cheapness and effectiveness, both chemically and otherwise.

A third advantage of the silo is its inexpensiveness. A round building holds more than any other kind, and the food in a silo goes in to fill up the smallest space and packs tighter than any other kind of storage, outside of baling, could possibly give. As compared with a barn, a silo is a fine method of putting away food. Of course, dry matter can usually be put up in less space than green; but that is beside the ease.

A very important feature, one that any dairyman will think highly of, is the saving of labor. Every dairyman would like to give his cows green feed continuously. He cannot do so with labor at the present price, except in rare cases, by cutting and feeding green corn, sorghum, alfalfa or such crops; for the cutting and handling of enough for a small herd every morning takes up too much time. By raising, cutting, hauling and storing the ensilage in four big jobs he has the work done and there is no bother in taking the ensilage from the silo to the milking stable than there is in getting out the hay from the barn. In short, the routine of the ranch can run on exactly the same as if alfalfa hay were cut, cured and fed, according to the fashion of nearly all alfalfa dairies where the cows are not pastured, and which is the cheapest, easiest and most efficient method of operation possible, saving only for the fact that straight alfalfa hay is not the best thing for the cows. The saving of labor and having an ideal combination of food is just about as fine a proposition as is possible.

Another very important feature, and nearly all the features of silo dairying are very important and attractive, is the saving of feed—a saving different from and in addition to that spoken above. Pasturing is a common custom where the

soil will permit, but all dairymen know that it will cut down the carrying capacity of the land a great deal, a third or a fourth anyway. By the use of the silo the alfalfa gets the best kind of use, produces heavily and since the cows have both green food and hay of a type that is most acceptable to them, the saving from all quarters permits the land to carry more stock by a nice margin than could be carried in any other fashion.

Along with the saving of feed is the saving of cattle. Bloat is the big problem whenever alfalfa is fed, especially green alfalfa, or any of the clovers. Fed a lot of corn silage and a moderate amount of alfalfa hay, the danger of bloat is about as far removed as is possible, and this saving to the dairyman is accomplished. Even the feeding of alfalfa ensilage is better than green alfalfa to prevent this trouble. If any of our correspondents have had trouble with bloat on alfalfa ensilage we would be glad to get the particulars. It is a matter that has been ignored and practically nothing said or written regarding it.

One of the last things to be said on this subject

corn. In one part of the State the pea vines from the canneries go into the silos and the way that silos can be made to help out are many.

Finally, for here at least, the silo in an alfalfa region gives an excellent rest to the land. When a piece of alfalfa is going to play out it can be plowed up in the fall and barley or oats put in. The richness of the soil after the alfalfa makes the cereal outdo itself. When it goes off, the corn can go in and so on, until the holdover richness of the soil due to the alfalfa has about passed and the soil is rested and ready to go to alfalfa production again with renewed vigor.

A silo in an alfalfa section means the finest thing in the world for the cows, ease of operation and moderate expense for the dairyman, saving of feed, a big carrying capacity for the land, and an excellent thing for the soil.

HOW SILOS HELP.

(Continued From Page 561.)

the cost per man to a very reasonable figure, and in return they have an outfit with which they can put up their ensilage at a total cost of from \$1 to \$1.50 per ton, counting all expense. Like all other forms of co-operation, this is the most practical way, but of course cannot be practiced unless there are other silos in one's neighborhood to co-operate with.

Next in order comes the raising of something to put into the silo, and here a great many seem to be misinformed, as the general opinion in the past has been that corn would not do well in most places in California. In regard to this, we will refer the reader to an article in the PRESS recently on the handling of corn for ensilage, and will simply say that the white dent corn, after being grown in this climate for two or more years, does do well, producing in some



Cutting Corn for the Silo.

is of the number of crops that can be put in. The silo can be kept in use all the year round and in good use. If desired, the first cutting of alfalfa can be put in, thus preventing trouble from the foxtail which is one of the pests to the alfalfa dairyman, but is a most excellent thing when handled properly. That ensilage can be fed until the last cutting, and the last cutting fed until the first is ready again, provided a person manages right. Both cuttings are occasionally used to make ensilage, though more and more dairymen are coming to see that other crops than alfalfa are best for this purpose.

A second combination can be made with corn and barley, or sorghum and barley. The corn is planted in the spring, when frosts are over and is ready toward fall, when it can be fed at once. The feeding can be continued until spring, the land meanwhile being irrigated and barley planted. The barley may be put in the silo when the corn is used up and the process repeated ad infinitum, but on different land at a time. Sorghum makes a good ensilage when properly handled and there is no difficulty in getting the right kind of a crop for the silo. The culture of corn for seed and for ensilage, by the way, are two different things and the reasons against growing shelled corn in some places need not be urged against ensilage

places as high as 20 tons of green corn for the silo.

The main thing is to have California-grown seed, as it has to be acclimated, so to speak, to do well, according to past experience. As to the method of feeding, different dairymen use different quantities and feed in different ways, according to their barn equipment and the kind of stock kept. However, almost everyone feeds at milking time along with some alfalfa hay, and this seems to be the most satisfactory way. When fed in this way, from 30 to 40 pounds per day are used, along with what hay a cow would consume, which varies according to the size of the animal and her capacity as a butter producer.

The experience in feeding this year, following a very dry year, has brought out what to some was a new advantage. In several places we visited, alfalfa hay was so scarce that in order to stay with the dairy through the winter a good many dairymen who depended solely upon alfalfa were compelled to dispose of a part of their herd, and, with dry weather, prices for stock fell off considerably. In these same districts, though, wherever a silo was owned, we found that the dairyman had been able to bring his stock through in fine shape, and in one case where the silo had only been in use the one season, the dairyman told us that this winter his cows aver-

aged \$12 per cow per month with a good many heifers in his herd. This was a good deal more than he had ever done before on hay with matured stock.

All those we visited seemed to consider that corn ensilage and alfalfa hay were the most evenly balanced ration obtainable, and that it made the most economical feed as well.

From this winter's experience it would seem that if there was any one thing which would overcome the hardships of dry winters, the silo is that thing, besides the extra profits realized in creamery checks.

Perhaps the best recommendation for the silo in California today is the number that are being put up this year by dairymen who endeavor to get the utmost profit from their investment.

HOG FEEDING PROBLEM.

How many pounds of barley per hundred weight of hog should be fed where the hogs get all the boiled potatoes they can eat? Also, would it pay to substitute ground barley for rolled, where rolled is \$30, and ground \$36, and would cocoanut meal take the place of one-fourth of the barley and have the same effect as if I used all barley?—H. S., Sebastopol.

ANSWER BY CHAS. GOODMAN, WILLIAMS.

The food and water requirements of hogs vary during the period from weaning time to six months of age. After that age they require for each 100 lbs. live weight 2.6 lbs. carbohydrates and 0.65 lbs. protein. The water required at six months would be $7\frac{1}{2}$ lbs. to each 100 lbs. live weight. The water is to be gradually decreased to 4 lbs. At the end of the seventh month, at which time the hog is supposed to be ready for market. It is plain to see that during this feeding period of six months that the carbohydrate requirement is exactly four times the protein.

Take the analysis of potatoes, barley and cocoanut meal, and we have the following:

Protein.	Carbohydrates.
Potatoes 2.10	17.30
Barley 12.52	68.91
Cocoanut meal . . 19.51	41.12
34.13	128.33

Mix the above of equal weight each and feed 3.25 lbs. to each 100 lbs. live weight mixed with $7\frac{1}{2}$ lbs. water. The water is to be gradually decreased as stated above.

Barley ground fine and bolted is much better for hogs than rolled barley, but we do not know the real value of the difference. Substituting $\frac{1}{4}$ cocoanut meal for barley would be better than potatoes and barley, but would still leave the ration badly out of balance.

RUST PREVENTION—MILK FEVER.

To the Editor: Please let me know if crude petroleum is a suitable oil for a stump-puller cable, and, if not, what is the best mixture for preventing rust? Also, do cows ever have milk fever just before calving? I saw what looked like a case in a cow that had been milked for several days to relieve the udder.—C. A. Bean, Guerneville.

Crude petroleum will prevent rust on a cable, chain, or such material. There is a regular preparation made for just such uses, which is handled by the Western Equipment Co., San Francisco.

It would be a most peculiar thing for a cow to have milk fever before calving. Milk fever comes after the cow has an udder full of milk and is milked too dry, withdrawing the pressure of the milk on the blood vessels in the udder. It comes only with heavy milkers and just when the heavy milking starts soon after calving. There is a possibility that a cow would have enough milk in her udder before calving so that when it was withdrawn the same trouble would arise as occurs in normal attacks of milk fever. It would be most rare that such cases could arise, and it would be most unwise to draw off enough milk before calving to cause anything like this trouble. Still, it might possibly be done, and if we are wrong we stand open to correction.

Apples and Grass for Foothills.

To the Editor: I have bought 160 acres of land in the foothills of the Sierra Nevada mountains, at an altitude of about 3500 ft. The average rainfall there is about 60 inches. There are a few apple trees on the place that produce good fruit, and I believe it is first-class apple land. Now I would like your opinion of the future of the apple market. If you think it good, what varieties would you advise planting? I would also like to know what is the best grass to sow there for pasture on land that has been logged off after I pull the stumps out.—Reader, Concord.

For the first proposition, the future of the apple market, will say that any person able to prophesy correctly the future of any market can quit work and just roll up wealth. It's a risky business prophesying future conditions, and we hesitate to give our opinion. It is known that there is an immense amount of new acreage coming into bearing, and with the rather unprofitable prices obtained this last season there appears to be at least a big risk in staking one's money and time on new plantings. Still, vastly more apples could be consumed, the method of distribution is being greatly improved, and there is a good chance that everything will come out all right. In any kind of business the man with the right start (in the apple business, good apple land), who attends to his business properly, is quite sure to make a financial success.

In regard to the varieties, we wrote to J. E. Hassler, Horticultural Commissioner of Eldorado county, for his observations (although you do not say what county your land is in), and received the following:

"As to your question what varieties of apples to plant at an elevation of 3500 ft., I can only recommend what I personally know will succeed at that altitude. If the enquirer wishes to grow apples commercially, he should plant all red apples, as they will sell better than the uncolored, regardless of quality. He should look around his vicinity and find out what sorts are doing well, if any, and stick to them. I would recommend Jonathan, Baldwin, Ben Davis, and Stayman's Winesap; they are all good sellers and good keepers. Where the ground is reasonably fertile, Italian rye grass does well, but at this altitude where you can irrigate, red clover is the best of all, as it enriches the soil more than any grass."

We also asked Prof. H. M. Hall, of the University of California, about the grasses at the time of sending another question, and received this reply: "The grass to be recommended will depend very largely on the local conditions which prevail at the ranch. The statement of an altitude of 3500 feet does not carry very much information, since so much depends upon latitude, slope, exposure, and other factors. In general, however, it would be well to consider the following plants, all of which are used to greater or less extent at middle altitudes: Red-top (*Agrostis alba*); orchard-grass (*Dactylis glomerata*); red clover (*Trifolium pratense*); and velvet-grass (*Holcus lanatus*). This latter plant grows luxuriantly on rather moist land, but is rather coarse except when cut and fed before fully mature.

POSSIBLE FERTILIZERS.

To the Editor: I enclose sample of some vegetation which grows very freely on my land. I should be glad to know what it is and to have your opinion on its usefulness. Also, I have a large quantity of redwood sawdust on my place and am considering using it as a bedding for

the horses. I desire to use the manure on the land and will be glad to know your opinion as to whether the sawdust would be harmful to the land when applied with the manure, or merely negative in its action.—W. J. E., Sylvan Dale, Mendocino county.

We forwarded the plant to Professor H. M. Hall, of the University of California, for identification, and received the following reply, which will be sufficient answer to that part of the question:

"The plant which you sent is the Meadow Hosackia (*Hosackia torreyi*). These plants may be distinguished from the clovers, to which they are related, by the fact that the leaves are pinnately compound; that is, they bear several leaflets along the sides of the leaf-stalk instead of three leaflets grouped at the summit of the leaf-stalk as in most clovers. The plant is of some value as a forage plant, but usually does not occur in sufficient abundance to add to the forage resources of any district. Since it belongs to the pea family, it is capable of fixing atmospheric nitrogen through the aid of certain bacteria living upon its roots. Several years ago there was an account in the *PACIFIC RURAL PRESS* of this plant as it grows in Nevada, with items as to its forage value."

This indicates that the plant would have some value for forage, also a value as a green manure. What the value will be will depend upon what else you can get as a forage plant, and whether some other legume, such as bur clover, would make a better growth in winter than this. In most places you evidently could get something better. For your conditions you should be the best judge.

In regard to the sawdust, we could hardly advise its use. It might be possible to use sawdust in very moderate amounts on land that was greatly deficient in humus and was so heavy that it needed vegetable matter to lighten it, but even then it would have to be put on in very small amounts. In your district the benefit would be very small and more than offset by the probable injury; and in fact in any place, sawdust could hardly be advised as a fertilizer. The manure would have very little effect in hastening the decay of this. You would do more to spoil the manure than to help the sawdust, and unless bedding materials are scarce, we would say to burn the sawdust and, if you want fertilizer, use the ashes.

LIME FOR ORCHARDS.

To the Editor: Have any of your orchardists found the application of lime necessary for the welfare of their orchards? If so, what form has the application taken, the quantity applied, and the time of application? In what form was the lime, slaked or quick?—A. O. Pike, South Australia.

Lime has not been very extensively used in California orchards, but some orchardists have applied it and the amount used is becoming much greater every year. Whether it is used on any place or not depends upon the need for it, provided the owner realizes the need. Probably more air-slacked lime is used than another form, and water-slacked comes next. Off-hand, would say that a quarter of a ton was the average amount applied, with the amount running up greatly for heavy soil. The application has generally proved very profitable. On the average orchard, however, it is doubtful if lime would be needed as yet.

The Capital Needed for Farming.

To the Editor: I am 46 years old, in good health, have a wife and no children. I have \$4,000. Have had no experience on a farm. Would you advise my coming to your State to attempt farming? I am a regular subscriber to your paper. —C. A. G., Memphis, Tenn.

The amount named would not go far in buying a farm, building a house, barn, etc., putting down a well and equipping a pumping plant, besides buying stock, and getting the ranch into a condition to raise a crop. However, many people have made successes on less capital to start with than the amount named. It depends upon the man, also what crops he raises. To get quick returns from his investment the farm must be planted to such crops as will mature quickly. An alfalfa and dairy ranch, or poultry, or hogs, or vegetable growing will give some returns the first year, but if the subscriber who has had no experience in farming would come to California, and

secure a place on some ranch and learn how and why, before he invested his money, he will make fewer mistakes and ultimately a bigger success. Fruit growing, berry and vegetable raising, dairy, hogs, alfalfa and poultry, are all profitable branches of agriculture in California, to the man who knows how, and the future outlook is very promising to those who will get into the game right, and stick to it.

It would perhaps not be well to advise a person to go into poultry raising unless he had a special desire to do so while other profitable branches of agriculture are open before him and the poultry business so well looked after as it is, but the following article by Charles Weeks of Palo Alto, taken from the San Francisco Call, will show how one man has made a success of this line of work, the capital required and the best way to go about it. If possible, we will give some time later an outline of the capital required and methods best suited to develop small farms of other sorts.

This question depends entirely upon the man behind the capital. I have known men to start in the poultry business on a shoestring and attain success in a few years, and I have seen men put \$30,000, \$50,000 and even \$100,000 into the venture and lose all inside of three years. It is a dangerous thing to invest big money in the poultry business without experience. Other enterprises require a lifetime experience to make them successful, so why should not men blunder in entering the poultry field.

Capital will not make the egg farm successful. It takes a man who knows a good hen and knows how to feed that hen to get the best egg production. When a man knows how to tell which hens fill the egg basket and knows how to produce the vigorous pullets and knows how to feed in order to get the most eggs in the shortest time, he need not fear for capital invested in an egg farm. Of course, he may know all these things, and be a lazy man and make a failure. A man must have management and executive ability.

It requires four or five acres of good, fertile soil with a pumping plant that will throw at least 300 or 400 gallons of water per minute as the foundation of an egg farm that will support a family and have a bank account for a rainy day. It is imperative that you start on a fertile soil. Fertile soil can be had in California for \$150 to \$1,000 per acre, according to location. The \$150 land without a market outlet is dear at any price. I think one is perfectly justified in paying \$300 to \$600 per acre for rich, well watered soil for a poultry ranch if the location has market advantages. My own ranch is located on land easily valued at \$1,000 per acre and I realize better returns than \$150 land where the public could not get on me.

Supposing we buy five acres at \$400 per acre with plenty of water and a fertile soil and publicly located. This makes \$2,000 for land to start with. Then a cottage to live in will cost from \$300 to \$2,000, according to style. Suppose we say \$1,000 for the cottage. Then you would want to start with at least 1,000 hens, and these will cost \$1,000 to get the kind that will pay. You can buy eggs or chicks and raise your own pullets, but counting time, labor, feed and all, they will cost just about that much any way you may figure it. But before you get the chickens it will take at the very least \$1,000 to install a three or four inch centrifugal pump with motor or engine to run

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APRICOTS, 1 ton per hour.
PEACHES (freestone), 2 tons per hour.

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HERE'S FOOD FOR THOUGHT

In farming, like in anything else, you've got to get at the bottom of things to find trouble or to get good results. A good solid foundation is necessary in everything.

It's what's under your soil that's responsible for what's on top of it. Now what is under your soil? Is there a good fertilizer beneath it?

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best in design, workmanship and materials. Purchase price cheerfully refunded if not satisfactory or found as represented.

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Trial packets 15c each, 4 for 50c. Write for prices in quantity.

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Blake, Moffitt & Towne

Dealers in 37 FIRST STREET, SAN FRANCISCO
Blake, Moffitt & Towne, Los Angeles
PAPER Blake, McFall & Co., Portland, Ore.

it and a tank to supply the house and poultry with water. Then \$500 for a laying house for 1,000 hens and you have the first cost of starting an egg farm that will make a decent living. I would not advise any one to work with less than 2,000 laying hens, for it will take that many to make a comfortable living and have an emergency fund in the bank. On five acres you can start out with 1,000 hens and increase to 4,000 hens, which will be the capacity of five acres and grow the green feed. Four thousand hens can be carried on five acres in California if houses and yards are right. With a system of double yards and plenty of water the ground can be kept free from taint and disease.

Supposing we say \$2,000 for land, \$1,000 for cottage, \$1,000 for pumping outfit, \$500 for laying house, \$1,000 for laying hens, and \$500 for incidentals in the way of galvanized slip joint pipe for irrigation, horse and wagon, etc. This does not allow for the cost of a brooder house and incubator cellar with incubators. Thus we have an outlay of \$6,000 to start an egg farm that will support a family and allow a little to increase the business or lay away.

Now you can buy land for half the price here calculated and cut the other items in half and get through for \$3,000. With a \$3,000 investment it will be hard to make a living and improve the place and increase the stock. If you have not the capital to fit and stock up a ranch to the producing point to start with, then there is one other way, and that is to buy the ranch on easy terms, say a fourth down, and start with a few hens and keep these going while working away from home on a salary and thus carry the poultry along until it gets on a paying basis. We have known some who have started with poultry and held an outside position until the poultry began to pay. This means much sacrifice on the part of both man and wife, but it pays better than the prospect of being a wage earner all your life. And right here let me speak a word for the good, industrious wife who jumps in and puts her mind and energies to poultry and helps meet the problems of getting established. Without the co-operation of a sensible wife I would not advise anyone to start in to build up a poultry business with little capital.

My wife and I started the poultry venture with \$1,275. We bought 10 acres, paid \$400 down and went in debt \$1,000, and with \$875 we built a place to live in and a brooder house. Then I went to work at the carpenter trade, building poultry houses and brooder plants on other ranches, and earned enough to buy hatching eggs in a short time, and by the help of my good wife we raised our first flock, which consisted of 400 fine pullets. We had a long, hard pull, with hard work and sacrifice, but we slowly built up a business that pays well for the extra effort.

Today we have a beautiful home, with trees for shade, well tilled garden and greens for poultry, with 3,000 choice laying hens that have been selected for egg production, and they make us an income above the average salaried positions.

To the man with \$500 or \$1,000 that dreams of the poultry business I would say, as to all others, go work a year on a large egg ranch and learn the business, and spend every cent of your hard earned wages carefully without making any mistakes.

It is one of the most independent, healthy and profitable businesses in the world if entered into with the same caution and preparation as other vocations.



Are These Fellows on Your Trees

Mr. Citrus Grower?

If they are get rid of them for they are a serious pest. They are the dreaded red spiders—one of the worst enemies of the citrus grower. They suck the very life out of a tree and if let alone will make the healthiest orchard lose its vitality. For a safeguard and sure exterminator

Use Yel-Ros

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it not only kills the "insect" itself but also the egg. That is not a mere statement—it's a proved fact. Order this spray at once. Don't wait until you must have it—when your trees are laden with this deadly "insect." "An ounce of prevention is worth a pound of cure." Yel-Ros is both a preventive and a cure and is the cheapest effective treatment.

Send for our 1913 Spraying Calendar. It costs 25 cents and is well worth it.

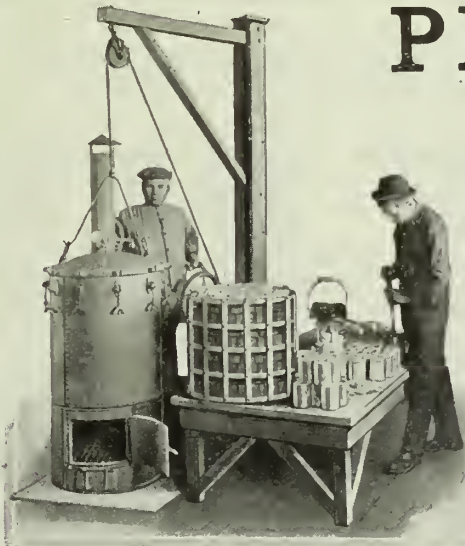
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A Potato Uplift Movement.

To the Editor: The potato industry of the United States while a very considerable one, is by no means so important as the extent and population of the country would seem to justify. The present average production of potatoes per acre in the United States is less than half that of either Great Britain or Germany. When the total average annual crop is compared with that of Germany it is found that we produce but a trifle over one bushel for every five produced by the German farmer. It is eminently fitting that the American farmer should inquire why the German empire with an area of 208,670 square miles and a population of approximately 65,000,000 people should produce nearly five times as many bushels of potatoes as the United States with an area exclusive of Alaska of 2,970,230 square miles and a population of about 90,000,000 of people.

How do the German people dispose of such quantities of potatoes? This is a question which the American farmer has as yet given too little consideration, but it is one which from now on should seriously engage his attention. Briefly summed up it might be stated that the German potato crop is, on the average, disposed of about as follows: 28% is used for table purposes, 40% is converted into stock foods, 12% is used for seed purposes, and the remaining 4% is converted into starch, 6% alcohol, and 10% decay. Certain quantities are, of course, exported to other countries where prices are sufficiently high to make such disposal more profitable than for industrial purposes.

What becomes of the American crop? The disposition of the American crop is a comparatively simple proposition; about 87% is used for table purposes; 12% for seed and 1% or less is devoted to starch manufacture or is fed to stock. Generally speaking that which is not used for table purposes or for seed represents the culls, and diseased stock.

Under existing conditions our present potato supply is a fluctuating one, and in consequence the prices received by the producer and paid by the consumer vary widely. In a normal growing season throughout the United States the production is ample for table purposes and prices are moderate. In an unfavorable season the crop is not sufficient to meet the market demands and the price is high. In Germany, on the other hand, a short crop simply means that the table stock is supplied from the 40% which is ordinarily converted into stock food, hence there is no wide variation in prices as in this country where no such reserve supply is available.

Can potatoes be profitably grown in this country for industrial purposes? How can we avoid seasons of abundance and seasons of scarcity with their consequent price fluctuations? These are questions which are national in their scope and of nation-wide economic importance. They can only be successfully handled through State and local associations acting in co-operation with a national organization. To meet such a situation "The National Potato Association of America" has recently been organized. The present officers of this association are as follows: President, W. A. Martin, Houlton, Maine; Vice-President, E. H. Grubb, Carbondale, Colorado; Secretary-Treasurer, William Stuart, U. S. Department of Agriculture, Washington, D. C.

The objects of the Association as set forth in the constitution are to bring together for mutual cooperation and coordination of effort all agencies interested in the production, transportation, distribution and utilization of potatoes, and the promotion of the potato industry in all

its phases.—Wm. Stuart, U. S. Dept. of Agriculture, Washington, D. C.

PERUVIAN ALFALFA IN ARIZONA.

There is frequently much discussion regarding the best variety of alfalfa to grow, and in the varieties spoken of, Peruvian alfalfa is always considered one of the best. Of this variety and the method of handling it, the Arizona Agricultural Experiment Station, in the annual report just issued, says:

"The Peruvian type of alfalfa seems eminently suited to climatic conditions in Arizona. It holds stand well, and in yield has exceeded all other types. It is somewhat coarse and stemmy, but this defect can be overcome to a large degree by thick stand and early cutting. Its rapid growth and the high nitrogen content of the leaves give to the hay a food value but slightly less than that of the best made from other varieties which are not so productive."

This will evidently hold more true for our hotter and drier sections than for the sections with a milder climate. The part relating to early cutting should especially be noted.

Inasmuch as the suckering of corn is one of the great problems in California corn culture, the following from the report should also be interesting. It is spoken of as a variety on which breeding experiments are being conducted, but holds quite true for other varieties, both there and here.

"This sweet corn is prone to give rise to a large number of suckers at the base of each stalk. Cultural experiments to determine whether these should be removed have given negative results, in that there was no appreciable difference in total yield, size, or number of ears on those rows which had the suckers removed and those which were allowed to develop normally."

WORLD'S PRODUCTION OF ORANGES AND LEMONS.

According to briefs and testimony presented before the Ways and Means Committee of the House of Representatives in its hearings on the revision of the tariff schedules, the principal orange-producing countries of the world are the United States, Spain, Italy, Palestine, Japan, Porto Rico and Cuba. The American orange industry is located in California, Florida, Louisiana, Texas and Arizona, and the total annual production is estimated at 20,000,000 boxes. About three-fourths of the American production comes from California, the number of boxes shipped in the 1911-12 season being 13,745,952 and in 1910-11, 15,695,450. The heavy freeze some months ago will reduce the 1912-13 yield much more than 50%; it is not yet possible to estimate the full damage to the crop. The total acreage runs about 11,000. The Florida production has previously run from 3,500,000 to 4,000,000 boxes annually, produced on an estimated acreage of 59,000, but the crop of the present season is expected to amount to 6,000,000 boxes or more and the output of future years will doubtless average that much or more. The number of pounds of oranges shipped in 1911 from the principal foreign producing sections is given as follows: Spain, 869,725,553; Italy, 282,945,860; Jaffa (Palestine), 60,890,130; Japan, 14,158,559; Porto Rico, 25,076,880; Cuba, 3,609,817. California has furnished about 40% of the total orange supply of the world.

The only sections of the world producing lemons in commercial quantities are

southern California and southern Italy, especially Sicily. The acreage in lemon trees in California in 1912 was 31,478, and the production is given as about

2,000,000 boxes as compared with American importations of 1,812,000 boxes. In Italy about 1,250,000,000 pounds of lemons are produced annually.

100 TONS
Forage Per Acre
Per Annum Without Irrigation

Plant
Luther Burbank's
Spineless Cactus
The world's most productive stock feed

None genuine without Seal Trade Mark Registered
This Seal guarantees a genuine Luther Burbank Production

"What can I expect in quantity if I plant Burbank's Spineless Cactus?"

The answer to this question is:

100 tons of forage per acre per annum—without irrigation. And the 100 tons per acre by no means represents the maximum. We have understated rather than overstated the yield that comes from planting this, the world's most productive stock feed.

One acre planted to alfalfa will produce enough feed for one cow. The same ground planted to Burbank's Spineless Cactus will produce enough feed for four cows.

Burbank's Spineless Cactus does not necessarily require rich land. The climatic conditions are as important as the soil. Cactus will stand as much white alkali as any forage known and the precipitation of rain can be as infrequent as once in four years. The best cactus culture will come from a precipitation of six to eight inches of rainfall a year, but it will thrive on from three to five inches per annum.

Your prosperity and your progress can be greatly increased by investigating Burbank's Spineless Cactus NOW. It is a question of PROFITS to you and every day you put off learning about this

the great forage for
Cattle, Hogs and Poultry

you postpone your own progress. Every day we receive letters from all over the world asking us for our cactus book. You should have it, too. It will give you complete information about Burbank's Spineless Cactus. It also contains Luther Burbank's own story of how he evolved the thornless cactus.

We would like to tell you a great deal more about Spineless Cactus here, but we prefer that you get the complete story in our Spineless Cactus Book. It is an absorbing story and every word will be of great interest to you because it deals with practical things that involve farm economics and farm profits. Send for the Burbank Spineless Cactus Book R.P. at once.

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Squirrels in Orchards.

To the Editor: Will you kindly tell me how to get rid of ground squirrels? They are climbing the trees and eating the peaches now.—W. J. M., Penryn.

Squirrels require different treatment in different seasons. When it is dry they can be poisoned, but when the grass is green and there is much other food they will not readily take poisoned grain, and some method of suffocating them in their holes has to be used. To kill them in their holes there are various methods advised, from wrapping up a sack, dipping it in crude oil, lighting it and inserting it in the hole, to the more scientific plan of using carbon bisulphide, plain or in specially prepared cartridges. The latter is the most effective and convenient. If your local dealer does not carry such cartridges they can be secured from the Newton California Fireworks Co., Dept. D, 249 Front street, San Francisco.

If you are unable to find the holes of all the squirrels, you may try the poisoned grain, for which a good formula is as follows:

Whole barley or wheat, lbs. 20
Gloss starch paste, pint. 1
Saccharine (soluble), drachm. 1
Strychnine sulphate (pulverized), oz. . . 1

The grain is placed in a receptacle large enough to permit thorough stirring. One pint of water is then brought to a boil, and sufficient laundry starch (about two tablespoonfuls dissolved in a little cold water) is slowly added to form, when well cooked, a paste about the consistence of cream. The strychnine (first powdered, if in crystals) and the saccharine are now added to the hot starch paste and the mixture well stirred until dissolved. While still hot this is poured over the grain, mixed well, and the whole put aside for several hours before using.

This formula is recommended because of its simplicity, cheapness and effectiveness. Scatter a teaspoonful or two along the squirrel trails, on the soft ground at the mouths of the holes, or at the foot of the trees. It will probably be found most effective if placed early in the morning, between the hours of three and seven o'clock, or late in the afternoon.

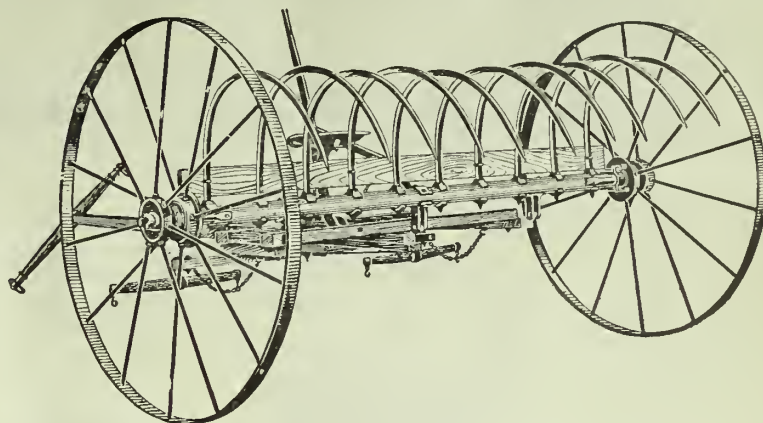
Or, in case you have so few to poison that it would not be worth while to go to the trouble of making this preparation, you can buy poisoned grain. Still, for this time of year, the method of destroying them in their holes is most effective.

IMPROVED CAROB VARIETIES.

This winter and spring one or two references appeared regarding the carob tree as a possible source of excellent stock feed where moisture supplies are moderate, as it is used in Palestine, Italy and some other Mediterranean countries. In this connection the following from the monthly report of C. W. Beers, Horticultural Commissioner of Santa Barbara county will be of value.

A number of thrifty trees grown from seeds imported from Italy by Dr. Frederick S. Gould, are growing in Montecito. Pods from two different trees were sent to the Department of Agriculture at Washington, where analysis of the contents showed almost thirty per cent of sugar, making them of high value as a forage product. This office has just been advised by telegraph that the Washington Department can deliver to us imported budwood of six varieties of carobs for planting wherever the growing of the tree will be found advantageous.

Benicia Bunch Rake



Rear View, Showing Lift of Tines

For Heavy Work.

Designed for bunching Windrows, handling Sagebrush, and all similar classes of service.

There is no question but what you need such a tool—BUT you know the strength and workmanship must be in it or it will fail.

WE GUARANTEE ALL.

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HOLT CATERPILLAR GAS TRACTORS

IN THE HARVEST FIELD IT IS ONLY IN REMOTE CASES THAT YOU ARE ABLE TO USE A ROUND WHEEL TRACTOR. FOR THEIR SUCCESSFUL OPERATION THE GROUND MUST BE HARD AND LEVEL. THE HOLT CATERPILLAR WORKS IN ANY GROUND: SOFT, SANDY, HILLY OR OTHERWISE.

IT PROVIDES A STEADY, EVEN MOTION ALL DAY LONG, ABSOLUTELY DEPENDABLE AND EFFICIENT. IT ALLOWS YOU TO COVER A GREATER ACREAGE DAILY THAN ANY OTHER TRACTOR CAN POSSIBLY DO.

BUILT IN TWO SIZES---30 AND 60 H. P.

In the rest of your year's work, there is no tractor in the world which will give you as complete satisfaction and save you as much money as the Holt Caterpillar.

It is the railway locomotive applied to agriculture. It runs on its own steel track. It never sinks in the ground, it cannot slip, it climbs hills, runs on muddy roads and it does not pack the soil. All because it lays its own track down, then rolls over it.



Holt Caterpillar and Holt Combined Harvester

Most traction engine manufacturers today are claiming that their tractors are the "best on the market," but they base their claims on some improvement in the motor or transmission.

You have a right to expect that these points in construction will give you satisfaction. It is simply a matter of industry for any manufacturer to secure a good motor, etc.

The traction advantages are now and always has been the important consideration to you.

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Among the Breeders.

[Written for the PACIFIC RURAL PRESS by J. C. LOOMIS.]

To anyone interested in fine stock, a trip to the Willow Wood Jersey Farm, owned by C. G. McFarland, near Tulare will be time well spent.

Mr. McFarland started with registered stock about six years ago, and since that time has built up a herd of fine producers and has at present one of the finest herds in the State.

The herd is strong in Golden Lad, Brown Bessie and Tennessee blood and has until recently been headed by the bull Grand Rioter No. 57524. This bull is a fine individual, but Mr. McFarland has a son by him and out of a cow called Leekes Fern McPherson, which he will use from now on. This dam, while not being an officially tested cow, has an unofficial test of 53½ pounds of milk in a day with a test of 4.4 and a weekly record of 364 pounds of milk; also a record of 13,940 pounds of milk a year, containing 681.79 pounds of fat. From the record of this dam, and from her looks, the

young bull should prove to be something pretty fine. One heifer which stands out very prominently in this herd is Rioter's Glory Gretchen No. 270693, sired by Grand Rioter and out of Philadelphia Glory's Gertie. This heifer as a two-year-old produced with her first calf 33 pounds of milk in a day with a test of 5.2. She is also of a fine type and should develop into a great producer as a mature cow. Heretofore Mr. McFarland has tested his cows persistently, but has not done any official work; however, he will in the future do official testing, as he is satisfied that is what the trade demands.

In the way of feeding, a silo has been in use for several years and has proved very satisfactory. Ensilage and alfalfa hay are the main feeds, although some ground barley is fed during the winter months.

Owing to the fact that a great many heifers and cows have been sold in past years, there are but 32 head of pure-breds on the ranch at present, but from now on the herd will be increased a good deal.

Recent sales by Mr. McFarland are to C. W. Newton of Lemoore, a bull aged 18 months, to Walter Billings of Tulare, a bull aged 16 months, and to Royal Waltz of Hanford, a bull calf and two two-year-old heifers and a heifer calf.

Although in the past Mr. McFarland has not exhibited at the State Fair, he expects to be a contender at that place this year in the Jersey classes.

Two milking machine outfits are being installed in Tulare county this month on the Swab ranch and the W. A. Jenkins ranch.

Mr. Swab is replacing four B. L. K. machines, which have been out of service for some time, with four new ones of the same make. At the time the old machines were discarded the dairy was rented to Italians, and since their lease expired Mr. Swab has had considerable labor trouble.

Mr. Jenkins is putting in two of the Hinman milkers with which he expects to do his own milking. If these machines prove satisfactory several dairymen in that section will install them, as labor troubles are bad there.

Among the progressive Duroc Jersey hog men in Stanislaus county is Ed. Johnstone of Turlock. Mr. Johnstone's ranch is located 3½ miles west of Turlock, and like a great many other ranches in that vicinity has a good deal of fruit on it. There are also 30 acres of alfalfa on the ranch, which product is consumed by the dairy cows.

Mr. Johnstone started in the pure-bred hog business about two years ago, at which time he purchased his herd boar, Frankford K No. 51345, from W. M. Lessman of Wayne, Nebraska. This boar was shown at the State Fair last year in the aged class, where he received third, but as he was a good deal younger than most others in that class he did very well. This year Mr. Johnstone expects to enter in five or six classes and will naturally put up a better showing.

There are at present about 60 head on the place, and Mr. Johnstone reports that although the season is bad, a fairly good demand has been experienced all winter. For a young breeder, Mr. Johnstone has done extra well and has hopes of being among the ribbon winners in 1915 at San Francisco.

The Linquist Bros. of Turlock have moved their herd of Duroc Jersey hogs from their former location close to town to their ranch located 2½ miles west of Turlock. As they have on their new

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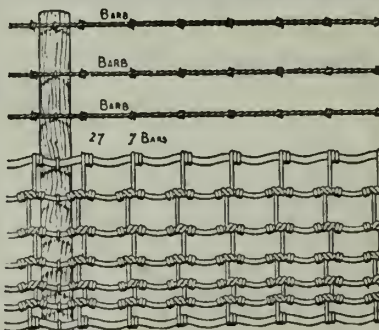
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ranch plenty of alfalfa and are planting some corn this year they will be able to raise more hogs than heretofore.

One of the largest sales for the month among the Jersey men was made by the

HOLSTEIN BULLS

3 past Yearlings from Tested Dams.

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Sacramento, Cal.

Box 962.

Rancho Dos Rios to E. D. Nairn of El Centro, Imperial county. There was a total of 17 cows and a bull, mostly registered stock, and it is the intention of Mr. Nairn to use this stock for foundation purposes. Mr. R. Watson, manager for the Rancho Dos Rios, also reports that he recently bought from H. N. Locke of Lockeford the bull Biddy's Valet of Lockeford. This bull's dam, Golden Biddy of Lockeford, was the Grand Champion cow at the Alaska-Yukon Exposition, and his sister was the Grand Champion at the State Fair at Sacramento last year. With such a good showing back of him he should be a valuable addition to the already good stock on this ranch.

G. O. Hillier, the well known Jersey breeder of Modesto, Stanislaus county, has purchased as a foundation several head of Duroc Jersey swine from John Daggs & Son of Modesto. Mr. Hillier expects to go into the hog business on a larger scale than he has been in the past and chose the Durocs for their quick growth and prolific tendencies.

LUMPY JAW.

To the Editor: I have a Jersey heifer that had her first calf in December. About the fore part of February I noticed a small lump about the size of a walnut on her right lower jaw bone. I rubbed it with Gombaults Caustic Balsam once a week for three or four weeks, after I first discovered it, but have not treated her with it for over six weeks. It did not check the growth. It is now the size of a medium sized potato. It is a bone enlargement and not in the muscles or flesh. The skin covering it seems to be thick and not as pliable as the other side of her head. If you have a remedy I will be thankful.—Subscriber, Arroyo Grande.

ANSWER BY DR. E. J. CREELY.

This is Actinomycosis (lumpy jaw) and is due to ray fungi (actinomyces) which are found originally on plants which enter the body in various ways. The trouble usually appears in the upper or lower jaws of cattle, where it generally produces tumors of bone or soft tissues. For treatment give 1½ drachms of iodide of potash in ½ pint of water daily for 14 days. Increase to 2 drachms for 14 more days, and then gradually decrease. Divide the tumor and insert tincture of iodine for 4 days. In 8 days a visible improvement will be noticed.

San Francisco Veterinary College.

KIDNEY TROUBLE IN HORSE.

To the Editor: What is the remedy for a horse that stops often to urinate while working? One of my cows has a swelling on her hind leg with little scabs on it, first it was on the front leg. It is as big as your hand. Can you tell what it is, and how to cure it?—J. A. D., Walnut Creek.

ANSWER BY DR. E. J. CREELY.

The horse is affected by an irritation of the kidneys. Give one quart of flax-seed tea daily, change the food and give one drachm of C. P. Hydro-chloric acid in one bucket of drinking water.

For the cow use the following, applied once daily:

Olive oil1 pint
Turpentine2 ounces
Oil cedar2 ounces
Lysol1 ounce

Mix and apply.

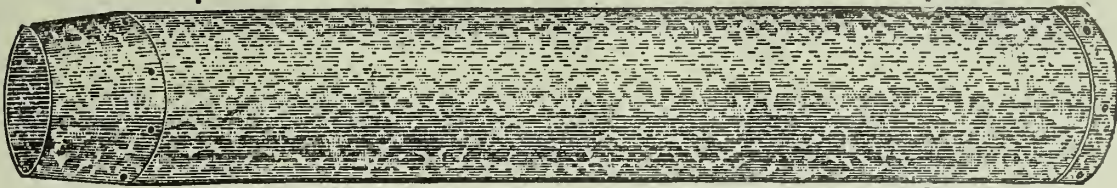
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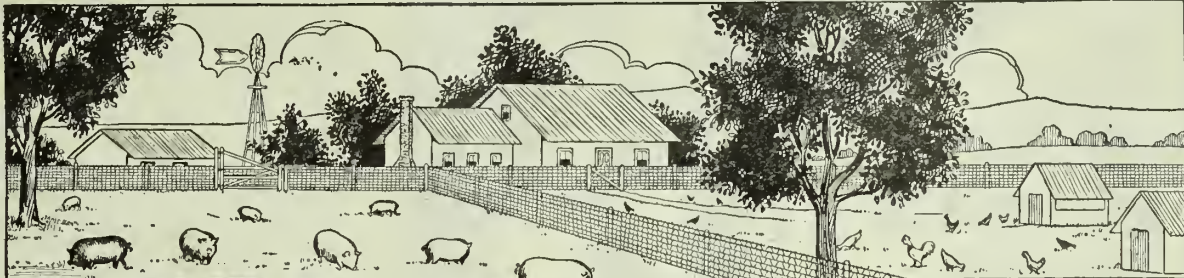
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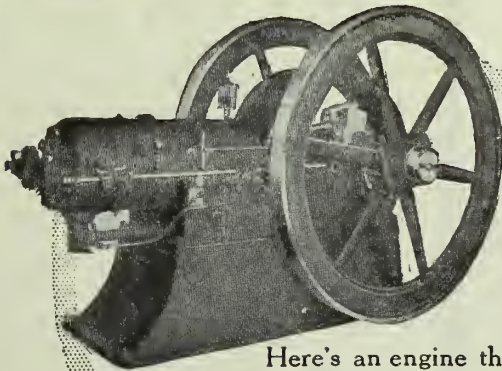
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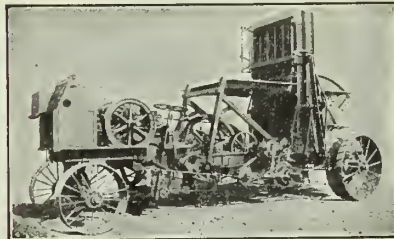
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Peanuts For Pork.

To the Editor: The "Farm Journal" prints the enclosed clipping and I should like to get your opinion on it. We can raise good corn here by irrigation and cultivation, and I should like to know if peanuts would be liable to grow even better in this locality.—M. M., Cool, El Dorado county.

Since peanuts will grow in parts of California and a person here and there may have half an acre or less of peanuts, this talk on methods of growing in Oklahoma will be interesting and may be of considerable value. The article follows:

The past three years were exceedingly dry, accompanied by hot winds in June

and July, and in consequence the corn crop was practically a failure in most parts of Oklahoma as well as in most other parts of the Southwest. Farmers with hogs on their hands were put to a severe test in fitting the animals for market and also for meat for home consumption; so it became necessary to find some crop that could be used as a substitute for corn and enable the farmers to market their swine in good flesh, and with as much profit as for corn-fed hogs.

The crop finally found, after much experimenting, and one that meets the requirements in cheapness of production and amount of profit, is the Spanish peanut; and so satisfactory has this crop

proved as a fattener, that the farmer and hog raiser no longer depends on his corn crop for this purpose, as peanuts are much more easily produced, the yield being much greater and the profit derived from an acre almost double that received from an acre of corn.

The peanut is one of the best drought resisting crops that can be grown in the semi-arid regions; in fact, it will stop growing and wait for rain. The plant will wilt under the hot sun of the day but will be fresh and green the next morning. It is very productive and will do well on almost any kind of soil, but is best adapted to a light, sandy loam with a clay subsoil. In the summer of 1911 the writer had four acres of peanuts, and although not a drop of rain fell for forty-five days, the plants continued to grow, and forty bushels an acre were harvested. In 1912, I had corn and peanuts growing side by side on the same kind of land and with the same cultivation, and gathered seventy-five bushels of peanuts and twenty bushels of corn an acre.

The most profitable way of raising peanuts is to cut the vines for hay after the nuts are filled out and nearly matured, and cure like clover and let the hogs harvest the nuts. An acre of peanuts in this way will produce from 800 to 1,000 pounds of fat on your hogs, and give you from one to two tons of hay, with a feeding value equal to alfalfa.

Last year the writer had a small patch of peanuts, a little less than an acre. September 15th the vines were cut for hay, and six hogs, averaging ninety pounds each, were turned in to harvest the nuts. November 15th the hogs showed a gain of 720 pounds, or a profit of \$58, at the price hogs were then selling.

Hogs fed on peanuts alone will not give the best results, as the flesh will be soft and watery, and they require a week or ten days feeding on grain to put them in the best shape for market. Kaffir and milo are used for this purpose to a great extent here, but the writer last year, by actual experience, found a better plan. In another small patch of peanuts cowpeas were drilled between the rows at the last cultivation in July. These peas matured by the time the nuts were really for the hogs. The vines were not cut for hay but the hogs were turned in, and it was found that the animals in this bunch made more rapid gains than those fed on peanuts alone, and that the flesh was solid and they were ready for market without the finishing on grain. The hogs consumed practically all the vines of the peas as well as those of the peanuts.

Peanuts are also profitably raised here as a money crop, as they produce from 50 to 100 bushels an acre, and sell readily for from seventy cents to \$1 a bushel, besides producing a ton and a half to two tons of hay an acre, which more than pays the cost of production and harvesting. The land on which the peanuts are planted should receive the same preparation as that for corn. The crop is planted from April 15th to June 15th in rows three feet apart, and the nuts dropped from fifteen to eighteen inches apart in the row. The seed should be soaked in water from twenty-four to thirty-six hours before planting, and planted in moist soil. One bushel used in this manner will plant an acre. The best results are obtained here by planting the unshelled nuts, just breaking them in two.

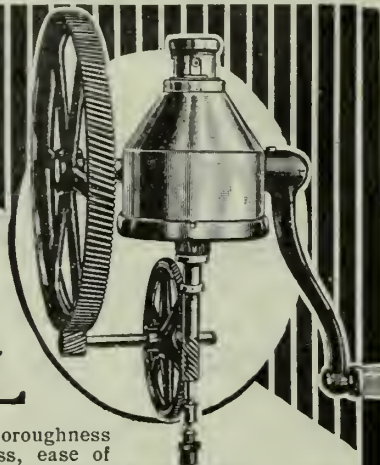
The peanut enriches the ground in the same way as does alfalfa, clover and like legumes. The nodules on the roots are much larger than those on clover, and in consequence a much larger quantity of nitrogen is gathered from the air.

In regard to using this practice in California in general and up in the foot-

hills of El Dorado county in particular, the prospects are not promising. Where this is written they are hard up for protein in the feed and here in California there is a surplus of protein, through the vast amount of alfalfa grown and fed. Peanuts would provide almost the same kind of food as alfalfa, and it would probably be much better in every way to grow alfalfa rather than peanuts as a hog food. If one wants a root crop for the hogs to harvest themselves the chances would be better with the same acreage of Jerusalem artichokes, which would also balance off better with alfalfa than peanuts would. If he is shy on moisture he would probably do much better with Egyptian corn or Milo maize, or let him grow a saccharine sorghum for roughage to feed to his cattle. That for the hog feed part of it. We are inclined to doubt the statement of the yield of peanuts in comparison to corn on corn land.

The peanuts would also grow better on the rich alluvial soils, sandy or light loam, of the interior valley than up in the foothills also. While they do grow excellently the cost of harvesting is apparently too great under present conditions to make them commercially profitable.

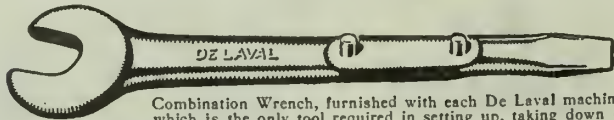
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What Is Overstocking?

A good deal is frequently heard on the overstocking of a range in this country. That this is a great evil no one will deny, financially, and when considering future decades. Just what is meant by overstocking is often not clear, and a discussion of the matter taken from the Agricultural Gazette of New South Wales, Australia, the Government publication of that State, will be worth reading. New South Wales in soil and climate closely resembles much of California and conditions there are similar to conditions here. Likewise these are conclusions reached after careful and scientific observation (official, not personal). This account is trimmed a good deal. In many places one would think they were writing of California. It says:

Much has been written, and more spoken, about overstocking. All admit its evil consequences, and many try to make amends. Moreover, there appears to be in many places a vague idea of what is really meant by overstocking. Many graziers think that if the stock remain for any length of time in good condition, the land is not being overstocked. Such an idea is misleading, because, by running all the stock a selection will carry for a certain length of time, a grazier is actually overstocking, and the result will surely be decrease in the carrying capacity of future years.

GREATEST CAPACITY NOT THE BEST.—The problem can be best understood by considering the land as having a maximum carrying capacity, and a judicious or optimum carrying capacity. By "maximum carrying capacity" is meant the largest number of stock a selection will carry without taking into account the condition of selection itself for future production, whereas by "optimum carrying capacity" is meant the largest number of stock a selection will carry without injury to the pastures, at the same time providing for future grasses and the eventual best results to station-owner and State.

WHEN IS LAND OVERSTOCKED?—It is evident that no hard and fast rule can be laid down as to the exact number of stock a range will carry. Observation of the conditions of the pastures themselves must guide the owner. If the grasses are not allowed to seed at least once in the year, or if any spots are allowed to be completely depastured, and the grasses to be replaced by thistle or other weedy herbage, the land is certainly being overstocked. Few seasons are needed to see the consequences. The good grasses become less and less in number, and as they become replaced by the weeds the stock leave the latter and eat the few good grasses that are left. The natural consequence is the substitution of weeds and noxious grasses for good pasture plants. Once such deterioration commences it increases, not in the same constant proportion, but in a proportion multiplied year by year. Miles of country in the Northwest are now covered with thistles and other similar herbage.

Again, the spread of barley grass, barren fescue (*Festuca bromoides*), soft bromes (*Bromus molles*), and other useless agricultural grasses in New South Wales has been remarkable. Less than twenty years ago they were rarities in many places. Now they have taken almost complete possession of the pastures. But, as the law of the survival of the fit-

test indicates that present conditions in many localities are more favorable for these than for the native grasses, it follows that, unless the latter are nursed and encouraged, the useless introduced grasses and weeds will predominate where at one time the natural herbage thrived.

The writer next goes to show how there is lost in a period of, say, 45 years, at the rate of \$280,000 per year by putting on 45,000 sheep, the number that a range can take care for a year or two in good shape, rather than 30,000 sheep, the number that it could care for indefinitely without deterioration. Probably the ratio of two to three is considered a very likely ratio between the number of animals that can be carried for a year and the number that ought to be carried. If this is correct there, it should be equally correct here.—ASSOCIATE EDITOR.]

NOTICE THE DIFFERENCE.—Most graziers are, through their practical experience, thoroughly aware of the good grasses on their estates. Many owners are also quick to observe if a good grass is gradually diminishing in quantity, and its place being taken by a less desirable fodder plant. One, however, often hears the remark, "this country will not fatten like it used to." Such a statement means that the good grasses are being replaced by less desirable herbage—not because of adverse climatic conditions, or of loss of nutriment in the soil, but because the good grasses have been discouraged.

REBUILDING PASTURES.—Assuming that the grazier is cognizant of the grasses best adapted for his estate, it is to his interest to obtain a pasture of these grasses. Of course, the surest method would be cultivation and seeding to the best; but it must be admitted that cultivation on a big selection would be impracticable and too expensive.

A good deal can be done by scattering good native grass seed over the area, just after rain if possible, and tramping it in with sheep or other stock. The black-soil plains are particularly adapted to this primitive method of cultivation, owing to the fact that the cracked nature of the soil allows the seed to be buried with very little difficulty. The owner of Nyngie Station is of the opinion that native grass seed may remain dormant in the soil for a long period, but when sufficient rains arrive it is washed to the surface and then germinates. Many graziers employ this method of scattering native grass seed on their areas, and often with very beneficial results.

In America good results have been obtained by plowing furrows here and there over the selection. The wind-blown seed is then deposited on the cultivated ridges and germination is assured. Many of the wind-swept areas in the interior

of New South Wales might be reclaimed by harrowing or scratching the surface, and laying down to native grass seed.

DIVISION AND RESTING OF PASTURES.—It is clear, however, that the main success in checking deterioration will be insured by dividing pastures and resting them from time to time.

Much of the black-soil area has, through overstocking, become herbage country. This is very unsatisfactory, for while it may provide excellent feed in the winter months, it is only temporary in character. During the summer, autumn, and well into the winter, the stock have to subsist on dried herbage, seeds, and dirt, and perhaps on a very small amount of dried grass that has previously escaped being eaten out. It is possible to obtain a judicious mixture of grass and herbage that will provide feed right throughout the year.

(Continued on Page 583.)

Cattlemen, Attention!

Herdsmen wants position with pure-bred herd of beef cattle; have had Eastern experience in fitting; reference: T. R. Marshall, professor animal industry at State Farm, Davis, Cal.; J. I. Thomson, of swine department.

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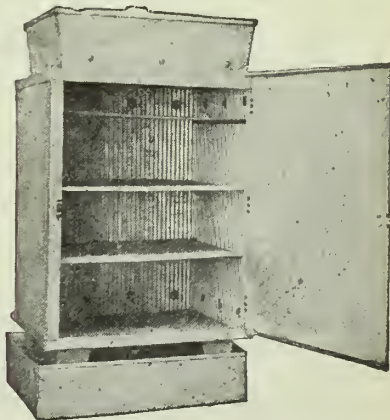
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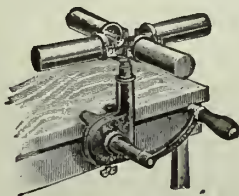


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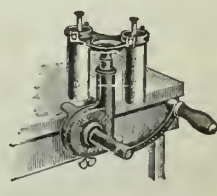
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More About Feeding For Eggs.

[Written for the PACIFIC RURAL PRESS by
Mrs. SUSAN SWAYSGOOD.]

Last week we found from very good authority, and this is the general opinion of all poultrymen, that a dry mash kept before the hens all the time is the best way to feed mash; also that it gives the most profit in eggs. Mind, we are talking of market eggs. The question that will come to meet people is, "What should the mash be composed of to give best results?"

And this is where I differ with most authorities. They give a mash composed of the same ratio of starchy foods, and other ingredients to all fowls alike no matter what the breed. It is even done in the egg contests, the same mash fed just in the same way to Leghorn and Brahmas, this as a contrast. As stated last week, and all who have had any experience knows it is correct, the small breeds will do well on a ration contain-

POULTRY.

MAMMOTH BRONZE TURKEY EGGS—From the largest and best pure-bred flock in the world. All turkeys carefully selected, and combine the greatest prize-winners and the best blood of the East and Middle West. They have large bone, long deep bodies, full breasts, brilliant plumage and are healthy. No inbreeding. Write for further information. Geo. A. Smith, Corcoran, Cal.

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ing more fattening food than the large breeds. Now, nearly all starchy foods are fattening, even oats if fed without the hull are very fattening. But the hull is very indigestible, so that unless soaked or sprouted they had better not be fed at all.

NOW FOR THE MASH.—To mix a mash for Leghorns, Minorcas or any of the small breeds, corn meal and corn bran if available, can be used. I would use one part corn meal and the same of bran, to two parts of wheat bran and two parts of wheat middlings or low grade flour; two parts of ground alfalfa, one part fish meal, one part good beef scrap and one part protein, or soya bean meal; to this add, say, two ounces of salt to two gallons of feed, and if it is desired to start a flock of pullets or hens that are backward, one part meat meal and one ounce of cayenne pepper to two gallons of feed. But remember this is a very stimulating diet and is not for breeders, it is only to be fed to hens whose eggs are for table use.

MASH FOR LARGE BREEDS.—For a mash intended for hens of the large breeds, such as Orpingtons, Rocks, etc., I use three parts wheat bran to one part oat chop, one part ground alfalfa, half part fish meal meal, and half part of good beef scrap; to this I add a small portion of fine ground bone meal and some fine ground oyster shell and a little salt.

You will see that this mash is composed of vegetable and animal protein, but the starchy foods are absent so that no matter how much the hens eat it does not conduce to fat. All the ingredients go towards the purpose it is fed for, namely, egg production without undue stimulation. When I have tried using middlings or corn meal, in every instance it has resulted in the hens getting too fat, eggs being infertile, and more broody hens than I could use. By keeping starchy foods away from them I get better results every way. Where hens have plenty of green feed the ground alfalfa can be dispensed with, and where there is skim milk the meat products can also be dispensed with. The only true economy is in feeding that which we have at hand at small cost, even though it may not give quite as good results. But when we have to buy, it stands to reason that we may as well buy that feed which will give the best results for money spent. Years ago I tried feeding cotton seed oil in place of beef scrap, but while it was perhaps as good in some ways I found it was very constipating, so I gave it up. A poor grade of beef scrap often causes diarrhea and even worse troubles, so it is well to buy only a grade that has been tested.

COMPOSITION OF THE EGG.—The chemical composition of the dry substance of the inside of the egg is:

	Protein	Fat
	%	%
White of the egg.....	88.92	0.53
Yolk of the egg.....	20.62	64.43

This composition would lead us to believe that in order to get eggs, fatty foods are as necessary as nitrogenous foods, but the hen makes some fat from the foods supplied her. An old customer of mine wrote me once that he had found a way of feeding for eggs that beat everything he ever tried. His feed consisted in boiling a big kettle of wheat and putting in about two pounds of salt pork. He said 'he was convinced that hens needed fat or grease more than meat, for besides getting more eggs, his hens were healthier and looked better every way than when he fed meat.'

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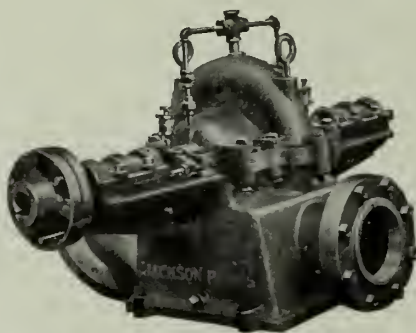
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mash, and was fed once a day, usually at breakfast. Of course, to a person having a big flock this would mean extra work, but on a small plant it could very well be tried out, and I know it is good.

TROUBLE WITH OATS.—In his final report for the egg laying contest, Mr. Quinsbury said, that they had trouble feeding oats as a dry grain, so had decided to omit it in the next contest, and only feed sprouted oats at noon time. The fact is you can feed sprouted oats as often as you please and no harm will

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come of it; on the contrary the hens will lay better and digest their food better, for sprouted oats are to poultry what malted foods are to human beings, an easily digested food, hence requiring little energy on the part of the hen to transform it into egg making. This is the real idea behind the saying of the lecturer quoted last week, "that we must not feed waste."

All food that takes too much energy is more or less waste, because it is voided from the hen before the elements have become absorbed. It is not what a hen eats, but what she digests that counts, so this should be the aim, to serve food that will digest easily; dry mash and sprouted oats are among the latter and when they are given in sufficient quantity there will always be eggs on hand. Still it won't do to serve all this class of food.

WORK FOR THE GIZZARD.—If we were to serve nothing but soft feed, or feed that is easily digested the gizzard would rebel, or to be more exact the health would suffer, because there would be no gastric juices. It takes hard grain to excite the gizzard to act, and if there is no action of the gizzard there will soon be poor health. Variety includes both hard and soft feed, not merely different kinds. That is why the day should really begin with a little hard grain, it starts the oil that makes the machine run smoothly all day, and it is a poor mechanic that waits until night to grease his machine when he expects to run it all day.

A NEW WRINKLE IN SPROUTING OATS.—At different times I have given methods of sprouting oats, but as the season changes the method best suited to it should be used. The easiest way for warm weather is to soak the oats over night in warm water, then next day sow them about two inches thick in furrows or rows, cover with about one inch of dirt and sprinkle every day. When green shoots come up they are ready to use, and when you dig them up with a spade you will have a good lump of dirt to every spadeful, and if they have been watered well there will also be a few worms and bugs, all of which the chickens will enjoy. I have tried about every way of sprouting oats, except buying a sprouter, but I think next winter I will get one, as the nights are too cold here to sprout outdoors without something by way of protection.

We have taken up considerable space this season with the feed question, but we need to make the most that it is possible to make when prices are low, so if any one reaps a benefit from the feed talks that is space well used. From present indications prices will not be very much higher this summer; we are getting 19c. here at present and feeding \$2 wheat. The two don't seem to jibe, but the jobbers make the prices of both, so we have to take the medicine handed out by the "powers that be," at present. I think it's a mighty good thing the editor has gone on the errand he has, for if these prices stay as they are, one low and the other high, we may all of us want to borrow money pretty soon, and not be able to get it. Washington farmers have been in that fix a long time now; because the Farmers' Union got so strong up there the banks shut down and refused to loan money no matter how much security was offered.

California is not that bad, but no knowing how soon we may get the same, so let everybody wish the editor "God speed" on his errand. He appears to be getting in uncongenial company. Hope he does not get in trouble with the suffragettes, but then they will know he is a woman's friend or he would not live in California, so they won't molest him."



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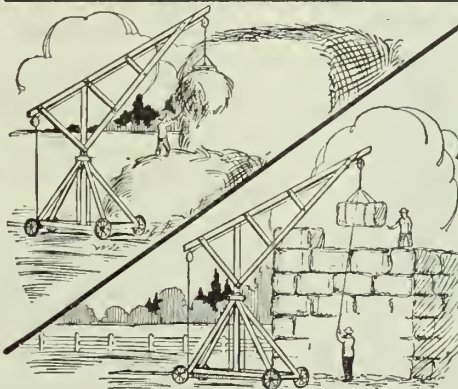
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AGRICULTURAL REVIEW.

With the Fruit Men.

About 500 tons of prunes of last year's crop are being held near Chico for better prices. Prospects for a prune crop in Butte county this season are good. Pears also promise a heavy yield, and peaches will make about half a crop.

The fruit crop in San Joaquin county will be larger than was thought six weeks ago. Prunes and plums and some varieties of peaches will make full crops. Apricots and other fruits will be light.

The Kern County Land Co. is setting out 40 acres to oranges on land located near Oil Junction. As this location is lower down in the valley than usual, the planting experiment will be watched with interest.

According to Horticultural Commissioner Schell, the grape crop of Fresno county was damaged by frost on May 1 to the extent of 10%. He estimates the peach crop of that county will not run over 40% of what it was last year.

The Corning Olive Growers as well as the Maywood Cured Fruit Associations are preparing to erect new buildings at that place this season.

Peach thinning is being done in the orchards around Yuba City. The trees are carrying a heavy crop and must be lightened. While the market has not opened there yet, growers are anticipating good prices for ripe fruit this season.

Reports from Sutter county indicate good crops, this season, of peaches, prunes and almonds. Irrigating the land is being done wherever possible.

Citrus trees for the big Mills groves in Glenn and Colusa counties are being received daily from the south. It is stated that 300 men are busy setting out trees.

The Fresno Republican states that buyers from canneries were in the field offering to pay \$22.50 per ton for orange cling peaches, \$27.50 for Tuscan and \$30 for Phillips.

The first shipment of plums for the season was sent from Vacaville last week.

The annual meeting of the Shasta Cured Fruit Association was held at Anderson, May 7. Reports made show that all but three cars of last year's prunes have been sold. Also a carload of peaches was all that was left over.

Table grape growers from various sections of the county met at Fresno last Saturday for the purpose of forming an organization for the marketing of their fruit. A committee on permanent organization was appointed to draw up plans, and another meeting will be held soon.

The first apricots of the season were shipped from Coachella valley last week. The crop is reported as being large and the fruit fine. The onion crop of the valley is also good, and big prices are being received by the growers.

Live Stock and Dairy.

The spring sheep shearing has been completed in the district around Corning, and the clip has been heavy. Much of the wool has been sold at 14 and some is being held for 18 cents.

A local stock company has been formed to take over and run the Dirvin cannery at Healdsburg.

From the Parrott grant, Butte county, there were shipped last week 4300 head of December lambs. The stock was sent to Chicago and brought \$4 per head.

The spring clip of wool around Chico is reported as being heavy. Very little of it has been sold, but fair prices are expected later in the season.

At the annual meeting of the San Mateo County Poultry Association, held on May 8, C. Stader was elected presi-

dent and Arthur R. Schroeder secretary. The second annual poultry show given by the association will be held at San Mateo December 4, 5 and 6.

Stock was in good demand at the Portland Union Stockyards last week. Steers sold as high as \$8.75, heifers \$7.75, hogs \$9 and spring lambs \$9.

E. C. Tatgenhorst of Ohio has recently purchased land at East Willows and is fixing up the place as a model dairy. He expects to stock it with Guernsey cows.

Montgomery Baggs last week sold 100 head of his grade Holstein dairy cows from his ranch near Turlock to parties in Modoc county, where the cows have been taken.

The U. S. Department of Agriculture states that on May 1, 1913, horses brought on an average, in this country, \$148 per head, as against \$146 a year ago, and \$154 per head in 1910.

A carload of thoroughbred Holstein cows has been received at Anderson, to be used to furnish milk for the new creamery there. The cows came from Tehama.

T. S. Glide and J. H. Glide are each having erected on their ranches near Davis, large silos by the Delta Construction Co. of Sacramento. We expect to

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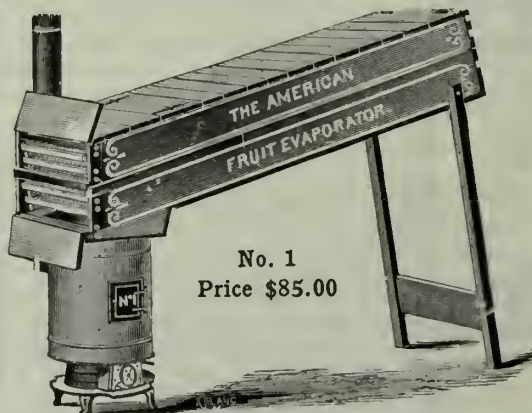
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print an article shortly covering the details of their construction, cost, etc.

The Hammond interests of San Francisco are reported to be buying land in Butte county. Extensive stock ranges are to be established and alfalfa grown on portions of it.

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MARTINEZ, CAL.

Turkish tobacco, raised in Tulare county, were shipped to South Carolina last week.

A co-operative sweet potato growers association is being organized in Merced county, where most of the "sweets" of the State are raised. The growers propose to market their crop to better advantage to themselves and to consumers.

The manager of a beer anch near Plano was arrested last week for bringing bees into Tulare county without county inspection.

The north winds that swept over Sutter county for a week recently did great damage to the grain crop. It is now stated that barley will not make over one-half and wheat about one-third of a crop.

Over 25,000 tomato plants have already been set out in the vicinity of Terra Bella, Tulare county, this season, in anticipation of a new cannery to be ready to handle this season's crop.

As an indication of the extent of rural telephone development in the United States, the Western Electric Co., which has been one of the pioneers and leaders in that development, reports that during 1912 over 100,000 rural telephones were sold by it to farmers' mutual companies, or direct to farmers themselves, making a total of over half a million telephones in four years. There are now over two million farmers using the telephone, and the number will increase as the other three millions come to a realization of the real help the telephone will be.

Land Improvement.

Work has commenced on the Frank Cox ranch, north of Patterson, to install an irrigation system to cover the land comprising 1800 acres. This land lies near the San Joaquin river and has for years been seeded to grain.

Landowners of portions of San Joaquin, Sacramento and Contra Costa counties are talking of organizing a new county by taking portions of those above named. The lands in the proposed new county are all in what is known as the delta section and the residents think they could have better roads and bridges if they could control the expenditure of county money along those lines.

Announcement is made that the 10,000-acre Rogers' ranch in Lovelock valley, Nevada, is to be subdivided into 40-acre tracts for settlers. An irrigation project to cover 30,000 acres is nearly completed for that valley.

It is reported that about 300 capitalists of Los Angeles have organized a Tulare Lake association which will seek to gain possession of many acres in the lake bed now owned by corporations and individuals. It is claimed that the filing on the lands are illegal and that the present owners are holding the lands illegally, inasmuch as the tracts are owned under the swamp land act, and that the property under question has not been permanently reclaimed and is therefore subject to a new filing.

Sixteen new pumping plants for irrigation have recently been installed in the Sanger section.

A pipe line to carry water to irrigate 700 acres of orchard land south of Loomis, is to be built this season.

The Roberts estate has installed a pumping plant, capable of lifting 1500 gallons of water per minute, to irrigate alfalfa land west of Madera.

Ira Winters is installing an electric pumping plant to irrigate his lands on the Lakeview ranch, near Carson City, Nevada.

The last lot of 725 acres of the old Webster ranch in San Jacinto valley was sold last week. This was a highly improved alfalfa ranch and is to be subdivided into small farms.

The old Elliot ranch of 5,080 acres owned by Frankenheimer Bros. was sold last week for reclamation and colonizing. The land lies at the junction of the San Joaquin and Stanislaus rivers.

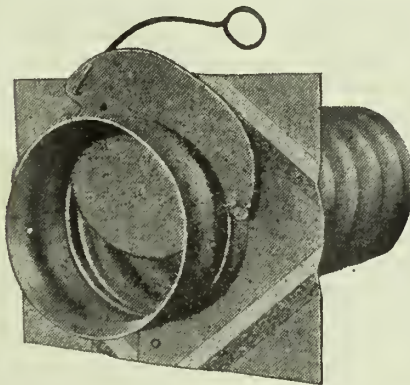
DISTILLATION OF EUCA- LYPTUS OIL.

The thrift of the eucalyptus in California frequently gives rise to the thought of distilling eucalyptus oil, and now and again some question on the subject comes in. Australia is the home of the eucalyptus, and the following from the Adelaide Observer will indicate the standing of that work there:

"Mr. G. Hall, of the Commonwealth Excise Department, has been inspecting the eucalyptus oil distilleries. There are 63 stills on the island, and the output during the past 12 months has amounted to nearly 25 tons. The output for the next 12 months will show a considerable in-

crease, as a number of the distillers have recently erected larger and more up-to-date plants. Under the old method of distilling, the narrow leaf was placed in 400-gallon iron tanks. The new plan is to place the leaf in wooden digestors, and then steam the oil out of the leaf with steam from a small boiler. The wooden digestors have a capacity of from 1000 to 4000 gallons. The oil obtained by the new process is clearer, and not discolored by the iron. Local distillers have been in communication with the Government Produce Department with a view to establishing a regular trade on the London market, under the supervision of the department. A trial shipment has been forwarded to the Trade Commissioner in London, and the returns are now anxiously awaited. In the event of the Government opening up a satisfactory market for island oil, a large area of land now considered worthless will be specially cultivated for the narrow leaf."

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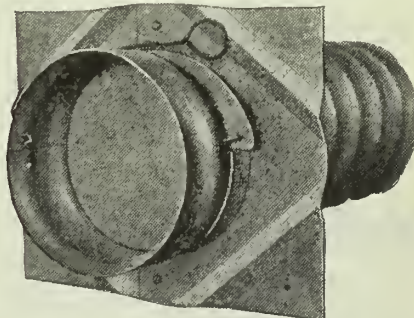
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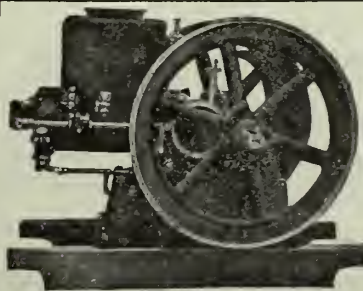


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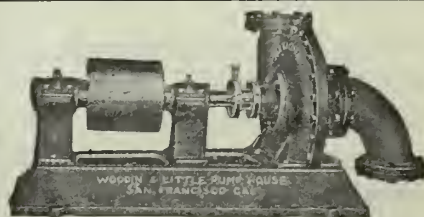
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The Home Circle.

Conky Stiles.

Eugene Field, the Hoosier poet and writer, has been dead for several years, but his writings will live for generations. Following is one of his short stories that we came across recently, which we believe is worth repeating:

As near as I can find out, nobody ever knew how Conky Stiles came to know as much about the Bible as he did. Thirty years ago people as a class were much better acquainted with the Bible than folks are nowadays, and there wasn't another one of 'em in the whole Connecticut valley, from the Canada line to the Sound, that could stand up 'long-side of Conky Stiles and quote Scripture.

Well, he knew the whole thing by heart, from Genesis, chapter I, to the amen at the end of the Revelations of St. John the Divine. That's the whole business in a nutshell.

His name wasn't Conky; we called him Conky for short. His real name was Silas Stiles, but one time at a Sunday school convention, Mr. Hubbell, the minister, spoke o' him as a "very concordance of the Holy Scriptures," and so the boys undertook to call him Concordance, but bimeby that name got whittled down to Conky, and Conky stuck to him all the rest of his life; not a bad name for him, neither as names go; heap more dignified than Si!

When Conky was eight years old he got the prize at our Sunday school for having committed to memory the most Bible verses in the year, and the same spring he got up and recited every line of the Acts of the Apostles without having to be prompted once. By the time he was twelve years old he knew the whole Bible by heart, and most of the hymn-book, too, although, as I have said, the Bible was his specialty. Yet he wasn't one of your pale-faced boys; no, sir, not a bit of it! He took just as much consolation in playin' three-old-cat and barn ball and hockey as any of the rest of us boys, and he could beat us all fishin', although, perhaps, that was because he learnt a new way of spittin' on his bait from his uncle, Lute Mason, who was considered a sport in those days.

Conky was always hearty and cheery; we all felt good when he was around. We never minded that way he had of quotin' things from the Bible; we'd got used to it, and maybe it was a desirable influence. At any rate, we all liked Conky.

But perhaps you don't know what I mean when I refer to his way of quotin' the Bible. It was like this: Conky, we'll say, would be goin' down the road and I'd come out of the house and holler, "Hello, there Conky; where be you goin'?"

Then he'd lay, "John xx, 3"—that would be all he'd say, and that would be enough, for it gave us to understand that he was goin' a-fishin'.

Conky never made a mistake; his quotations were always right. He always hit the chapter and the verse sure pop the first time.

The habit grew on him as he grew older. Associating with Conky for fifteen or twenty minutes wasn't much different from reading the Bible for a couple of days, except that there wasn't any manual labor about it. I guess he'd have been a minister if the war hadn't come along and spoiled it all.

In the fall of 1862 there was a war meetin' in the town hall, and Elijah Cutler made a speech urg'in the men folks to come forward and contribute their services—their lives, if need be—to the cause of freedom and right. We were all keyed up with excitement, for next to Wendell Phillips and Henry Ward Beecher, I guess Elijah Cutler was the greatest orator that ever lived. While we were shiverin' and waitin' for somebody to lead off, Conky Stiles rose up and says, "I Kings xx, 20," says he, and with that he put on his cap and walked out of the meetin'.

"Let me, I pray thee, kiss my father and mother, and then I will follow thee." That's what Conky said, or as good as said, and that's what he meant, too.

He didn't put off his religion when he put on his uniform. Conky Stiles, soldier or civilian, was always a livin' walkin' encyclopedia of the Bible—a human compendium of psalms and proverbs and texts, and I had that confidence in him that I'd have bet that he wrote the Bible himself if I hadn't known better and to the contrary.

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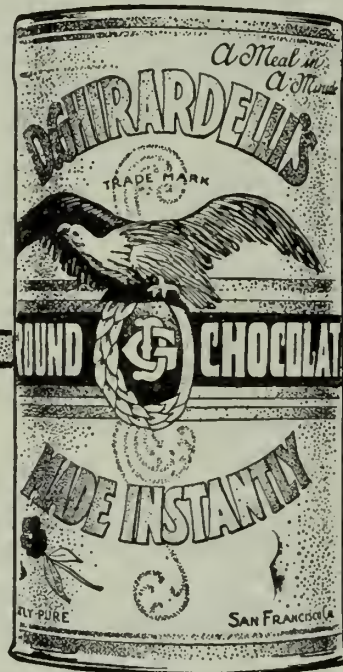
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We were with McClellan a long spell. There was a heap of sickness among the boys, for we weren't used to the climate and soil, and most of us pined for the comforts of home. Lookin' back over the thirty years that lie between this time and that, I see one loomin' up, calm and bright and beautiful in the midst of fever and sufferin', privation and death. I see a homely, earnest face, radiant with sympathy and love and hope, and I hear Conky Stiles' voice again speakin' comfort and cheer all about him. We all loved him; he stood next to Mr. Lincoln and General McClellan in the hearts of everybody in the regiment.

They sent a committee down from our

town one Thanksgiving to bring a lot of good things and to see how soon we were going to capture Richmond. Mr. Hubbell, the minister, was one of them; Deacon Cooley was another.

There was talk at one time that Conky had a soft spot in his head for the deacon's girl, Tryphena, but I always allow that he paid as much attention to the other daughter, Tryphosa, as he did to the elder sister, and I guess he hadn't any more hankerin' for one than he had for the other, for when the committee come to go home Conky says to Deacon Cooley, "Well, good-by, deacon," says he, "Romans xvi, 12."

We had to look it up in the Bible be-

fore we knew what he meant. "Salute Tryphena and Tryphosa, who labor in the Lord"—that was Conky's message to the Cooley girls.

He wrote a letter once to Mr. Carter, who was one of the selectmen, and he put this postscript to it: "Romans xvi, 6." You see, Mr. Carter's wife had been Conky's Sunday-school teacher, and Conky did not forget to "Greet Mary, who bestowed much labor on us."

Down at Elnathan Jones' general store the other day I heard Elnathan tell how Conky clerked it for him a spell, and how one day he says to Conky: "That Baker bill has been runnin' on for more'n six weeks. We can't do business unless we get our money. Conky, I wish you'd kind o' spur Baker up a little."

So Conky sat down on the stool at the desk, and dropped Mr. Baker a short epistle to this effect: "Romans i, 14; Psalms xxi, 11; Psalms cxlii, 6." Next day who should come in but Mr. Baker, and he allowed that the letter had gone straighter to his conscience than any sermon would have gone, and he paid up his bill and bought a kit of salt mackerel in the bargain, so Elnathan says.

I could keep on tellin' things like this day in and night out, for lots of just

such stories are told about Conky all over Hampshire county now; some of 'em doubtless are true, and some of 'em doubtless ain't. There's no tellin'; but it can't be denied that most of 'em have the genuine Conky flavor.

The histories don't say anything about the skirmish we had with the rebels at Churchill's bridge along in May of '64, but we boys who were there remember it as the toughest fight in all our experience. They were just desperate, the rebels were, and—well, we were mighty glad when night came, for a soldier can retreat in the dark with fewer chances of interruption. Out of our company of one hundred and fifty only sixty were left! You can judge from that of what the fighting was at Churchill's bridge. When they called the roll next day, Conky Stiles wasn't there.

Had we left him dead at the bridge, or was he wounded, dying the more awful death of hunger, thirst, and neglect?

"By ——!" said Lew Bassett, "let's go back for Conky!"

That's the only time I ever heard an oath without a feelin' of regret.

A detachment of cavalry went out to reconnoiter. Only the ruin of the previous day remained where we boys had stood and stood and stood—only to be repulsed at last. Bluecoats and graycoats lay side by side, and over against one another in the reconciling peace of death. Occasionally a maimed body, containing just a remnant of life, was found, and one of these crippled bodies was what was left of Conky.

When the surgeon saw the minie-hole here in his thigh, and the saber gash here in his temple, he shook his head, and we knew what that meant.

Lew Bassett, a man who had never been to meetin' in all his life, and who could swear a new and awful way every time—Lew Basset says: "No, Conky Stiles ain't goin' to die, for I shan't let him!" and he bent over and lifted up Conky's head, and held it so, and wiped away the trickles of blood, and his big, hard hands had the tenderness of a gentle, lovin' woman's.

We heard Conky's voice once, and only once, again; for when, just at the last, he opened his eyes and saw that we were there, he smiled, feeble-like, and the grace of the Book triumphed once more within him and he says—it seemed almost like a whisper, he spoke so faint and low—"Good-by, boys. Second Timothy, iv, 7."

And then, though his light went out, the sublime truth of his last words shone from his white, peaceful face.

"I have fought a good fight, I have finished my course, I have kept my faith."

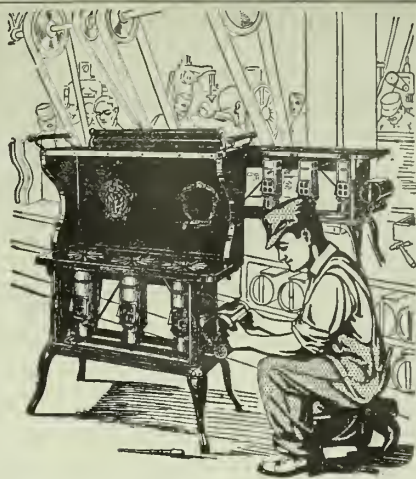
Smiles.

"Well, Mariar," said the old man, as he got down from the wagon seat, where he had been patiently waiting, "did you see all the animals?" "All but two," she said, with a sigh. "I couldn't seem to find the carnivora and the egress. I expect they was the best part of the show, too."—Washington Times.

"S-s-s-sus-say, ma," stammered Bobby, through the suds, as his mother scrubbed and scrubbed him, "I guess you want to get rid o' me, don't you?" "Why, no, Bobby dear," replied his mother. "Whatever put such an idea into your mind?" "Oh, nuthin'," said Bobby, "only it seems to me you're trying to rub me out."—Onward.

A train was rushing along through some swamps in northern Indiana. The track was fringed on either side with "cat-tails," literally thousands of their brown heads bobbing around in the breeze. A small boy was evidently city-bred, for he presently exclaimed, "Mam-

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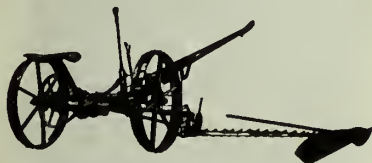
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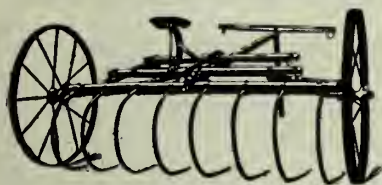
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MILWAUKEE MOWERS
AND RAKES.

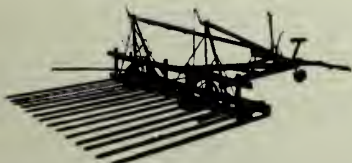
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ma, I didn't know that sausages grew in that way."—Chicago Herald.

The old lady from the country and her small son were driving to town when a huge motor car bore down upon them. The horse began to prance, whereupon the old lady jumped out, screaming at the top of her voice. The chauffeur stopped and offered to help. "That's all right," said the boy, composedly. "I can manage the horse. You just lead mother past."—Tit-Bits.

A Girton undergraduate, having inadvertently changed umbrellas with a fellow-

student, is said to have evolved this note: "Miss —— presents her compliments to Miss ——, and begs to say that she has an umbrella which isn't mine. Sc if you have one that isn't hers, no doubt they are the ones."—Exchange.

Lady of the House—That is home-made beer. I made it myself. It's absolutely pure—nothing in it but malt and hops.

Visitor—An' water, mum?

Lady—Oh, Yes! I forgot the water.

Visitor—No, mum, you may have forgot the malt and hops, but you didn't forget the water.

THE MARKETS.

San Francisco, May 14, 1913.

(Unless otherwise noted, quotations represent prices paid to the growers.)

Cereals.

WHEAT.

As for some time past, the local market is very dull, but supplies are limited, and considerable small business in California and Northern Club has been done at higher prices. Other grades are firm at the old quotations.

California Club, ctt.	\$1.62½ @ 1.65
Forty-fold	1.65 @ 1.67½
Northern Club	1.62½ @ 1.65
Northern Bluestem	1.70 @ 1.77½
Northern Red	1.62½ @ 1.80

BARLEY.

Speculative business has quieted down considerably, the spot movement being about as before. Offerings are rather light and very firmly held, and supplies remaining in the country are held at about the same figures that prevail here.

Brewing and Shipping...	Nominal
Choice Feed, per ctt.	\$1.45 @ 1.50
Common Feed	1.40 @ 1.42½

OATS.

Red seed oats are nominal, as there has been very little demand of late. Otherwise prices stand as before, though there is an upward tendency, with light offerings and a very fair current demand.

Red Feed	\$1.65 @ 1.85
Seed	Nominal
Gray	Nominal
White	1.70 @ 1.75

CORN.

California corn is rather easy, as there is more coming in than for some time and the demand is not large. Eastern yellow is lower, white being nominal, with none here at the moment.

Cal. Yellow	\$1.60 @ 1.65
Eastern Yellow	1.55 @ 1.60
Eastern White	Nominal
Caffr	1.50 @ 1.55
Egyptian	1.70 @ 1.75

RYE.

There is nothing new in this grain, both supply and demand being light and values accordingly little more than nominal.

Rye, per ctt.	\$1.40 @ 1.45
---------------	---------------

BEANS.

The bean market in general shows increasing easiness, though prices have not changed greatly and local dealers are disposed to hold out for fair figures. The general demand, however, is light, and supplies remaining here are rather large for this time of year, the movement being held down closely to consuming requirements. Pinks have been marked down a little this week, this being the only quotable reduction. White beans still show much more strength than other varieties, and with supplies rapidly decreasing, prices for both large and small varieties show a further advance.

Bayos, per ctt.	\$3.25 @ 3.45
Blackeyes	3.15 @ 3.25
Cranberry Beans	4.70 @ 5.00
Horse Beans	2.35 @ 2.50
Small Whites	5.35 @ 5.50
Large Whites	4.90 @ 5.10
Limas	5.35 @ 5.45
Pea	Nominal
Pink	3.40 @ 3.50
Red Kidneys	4.00 @ 4.25
Mexican Red	4.00 @ 4.20

SEEDS.

There is little demand for anything at present, prices being nominally held at old level.

Alfalfa	Nominal
Barley	Nominal
Mustard, per lb.	3¾c
Mustard	6 @ 6½c
Mustard	3c
Mustard	2½ @ 2½c
Mustard	Nominal
Mustard	Nominal

FLOUR.

Values have stood unaltered for several months, and there seems to be no immediate prospect of change. Buying is rather closely limited to current needs.

Family Extras	\$5.60 @ 6.00
Bakers' Extras	4.60 @ 5.20
Perfine	3.90 @ 4.10
Oregon and Washington	4.90

Hay and Feedstuffs.

HAY.

Arrivals have again increased considerably over the previous week, and in-

clude some new-crop alfalfa and barley and oat hay. Quotations show little change, though there is a little easier feeling in the local market, and business is very dull, as buyers are holding off in anticipation of heavier offerings and a general decline. There is said to be some pressure to dispose of holdings of old hay which had been kept for emergency, but in general values are pretty well maintained. As supplies increase, some decline is fairly certain, but it is admitted everywhere that the production of grain hay will be very light, and the reduction in prices should not be very great. The output of alfalfa will be large, and this will probably be substituted to a large extent for grain hay.

No. 1 Wheat, or Wheat and Oat	\$19.00 @ 22.00
do No. 2	16.50 @ 19.00
Lower grades	15.00 @ 16.00
Tame Oats	16.00 @ 21.00
Wild Oats	14.00 @ 18.50
Alfalfa	12.50 @ 14.00
Stock Hay	9.00 @ 11.00
Straw, per bale	35 @ 80c

FEEDSTUFFS.

Everything in this line continues to find a brisk consuming demand, and with moderate offerings prices are well maintained. Bran shows quite a sharp advance, and rolled barley is also higher.

Alfalfa Meal, per ton	\$22.00 @ 24.00
Bran, per ton	23.00 @ 29.00
Oilcake Meal	35.50 @ 36.50
Cocoonut Cake or Meal	Nominal
Cracked Corn	34.00 @ 35.00
Middlings	33.00 @ 34.00
Rollod Barley	31.00 @ 32.00
Rollod Oats	35.00 @ 36.00
Shorts	27.00 @ 28.00

Garden Truck.

VEGETABLES.

Onions are still rather easy in value, with increasing supplies from several quarters. More new reds are coming in from the river, selling now as low as 1½c per pound, while a little Nevada stock is held at \$1.25. Choice garlic is higher, old stock being pretty well cleaned up. The asparagus situation shows little change, arrivals being still heavy, with fancy stock a little lower. Green peas have been in free supply, but prices are kept at a satisfactory level by frequent orders for shipment. String beans are dropping with increased supplies, some of the arrivals showing poor quality. Summer squash also is lower, and cucumbers show some reduction.

Onions: River, Yellow, ctt.	85c @ \$1.00
Oregon, per ctt.	1.00 @ 1.10
Australian	4.00 @ 4.50
Bermuda, crate	1.00 @ 1.15
Garlic, per lb.	6 @ 8c
Cucumbers, per doz.	50c @ 1.00
Cabbage, per ctt.	50c
Carrots, per sack	75c
Cauliflower, per doz.	40 @ 50c
Celery, crate	2.25 @ 2.50
Rhubarb, box	50c @ 1.25
Artichokes, crate	1.25 @ 1.75
Green Peppers, lb.	15 @ 25c
Lettuce, crate	50c @ 1.00
Green Peas, sack	2.50 @ 3.00
Asparagus, box	60c @ 1.25
String Beans, lb.	5 @ 8c
Summer Squash, box	60c @ 1.00

POTATOES.

The old stock of sweet potatoes is about cleaned up. Old potatoes are gradually moving off, but the supply held over is too large for any improvement of prices. New potatoes are held at about the former prices, as the supply from bay districts is short, and the main crop is greatly delayed.

River Whites, ctt.	50 @ 75c
Salinas, ctt.	75 @ 90c
Oregon, ctt.	50 @ 75c
New Potatoes, ctt.	\$1.65 @ 2.00

Dairy Produce.

POULTRY.

Shipments of young stock from nearby points are now on the increase, and broilers and fryers are lower. Otherwise values for chickens remain about as for some time past, with only moderate supplies from the East and an active local demand. Squabs and turkeys are lower.

Large Broilers, per lb.	26 @ 28c
Small Broilers, per lb.	28 @ 30c
Fryers, per lb.	26 @ 28c
Hens, extra, per lb.	19 @ 20c
Hens, large, per lb.	18 @ 19c
Small Hens, per lb.	17 @ 18c
Old Roosters, per lb.	10 @ 12c
Young Roosters, per lb.	22 @ 25c
Squabs, per doz.	\$2.00 @ 2.50
Geese, per pair	1.50 @ 2.00
Ducks, doz.	4.00 @ 6.00

Turkeys, dressed	22 @ 24c
do live	21 @ 22c

BUTTER.

Arrivals continue about equal to current requirements, and there is little difficulty in disposing of all offerings from day to day. Prices fluctuate within narrow limits, being now firm at the same level as a week ago.

Thurs.	Fri.	Sat.	Mon.	Tu.	Wed.
Extras	27	27	26½	26½	27
Firsts	26	26	26	26	26

EGGS.

Prices have shown no change whatever for nearly two weeks. Production continues large, but values are maintained by the movement into storage.

Thurs.	Fri.	Sat.	Mon.	Tu.	Wed.
Extras	19	19	19	19	19
Firsts	18	18	18	18	18

Selected	16½	16½	16½	16½	16½
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CHEESE.

Supplies are by no means heavy, and fancy flats show another advance of 1c, while Y. A.'s are 1½c higher.

Fancy California Flats, per lb.	15c
New Young Americas, fancy	16c
Monterey or Jack Cheese	14 @ 15c

Deciduous Fruit.

Several lots of southern raspberries have come in lately, finding ready sale at about the range quoted. Receipts of strawberries continue to increase, bringing lower prices, and the consuming demand is large, while a considerable surplus is taken by canners. Cherries are also lower, and move a little more freely, but the arrivals are not cleaning up very readily at present prices. Several small lots of southern apricots have appeared, bringing rather high prices, but values are not very well established. Apples stand as before, with only a limited demand.

Raspberries, basket	12½ @ 20c
Strawberries:	
Longworth, chest	\$4.00 @ 6.00
Other varieties, chest	3.25 @ 4.00
Apples: Red, box	75c @ 1.00
Newtown Pippins, 4-tier	1.25 @ 1.50
Cherries:	
Purple Guigne, drawer	65 @ 90c
White	35 @ 50c
Black	90c @ 1.00

Dried Fruits.

Prices offered by local packers for stock in growers' hands show no change as yet, though the market continues to show a gradual improvement. Prunes are especially strong, with some inquiry for export and an increasing demand for Eastern shipment, and there is a good prospect for a clean-up of the stock still remaining on the Coast. The limited crop in prospect for this year should find a strong demand at higher prices, and while no quotations have been made as yet, it is expected that offers will be out in a few days. Some effort to contract ahead in other lines is also expected, as the canners are making liberal offers for peaches and some other fruits, and there should be considerable competition among buyers. Prices on old stock are well maintained, with a rather better demand for the summer consuming requirements, though the small trade shows no disposition to take on large stocks. The New York Journal of Commerce says: "If the plans now being worked out are carried to their ultimate conclusion, the unsettled and at the same time demoralized market conditions that have been the bane of the raisin industry for years past will be replaced by steady, profitable conditions for everyone engaged in the business. In the meantime the movement in raisins here is slow and on the hand-to-mouth order, but the tone of the market is steady and prices are held closely up to quoted figures. The cleaning-up process continues in the market for large-size California prunes here and on the Coast. The demand for stock held here is not active, but sufficient to impart a strong tone to the market in view of the restricted supply. Of late there has been an active export demand for prunes for prompt shipment from California, which has helped to materially strengthen the views of Coast holders. According to some reports, fully 200 cars have been sought for shipment to Europe within the past two or three weeks, covering all sizes, though 40s and 50s seemed to be given the preference. Apricots are strong and fairly active for immediate delivery. Rumors are current of sales on the spot of 7,000 boxes from one holder to another at full quoted prices, but they are not generally credited, as the supply here is



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Notice to Stockholders.

The Regular Annual Meeting of the Stockholders of the GRANGERS' BUSINESS ASSOCIATION will be held at the office of the Company, No. 240 California Street, San Francisco, California, on Tuesday, the Tenth day of June, 1913, at 10 o'clock A. M., for the purpose of electing a Board of Directors to serve for the ensuing year, and for the consideration and transaction of any other business that may be brought before the meeting.

F. A. SOMERS, President.
R. H. CHILDS, Secretary.

Dated May 17, 1913.

so light that it is thought to be impossible that any one factor could have such a quantity. No business in future apricots for shipment to domestic markets is reported, and so far as can be learned no prices on 1913 crop have yet been made to the domestic trade. Europe is said to have bought quite a little for delivery out of the new crop on the basis of 10½ @ 11c for choice Royals f. o. b. Coast shipping point, and is reported to be still in the market. Peaches, being in small compass on the spot, are firm, and owing to the unfavorable outlook for the coming crop, the Coast market is strong, but so far buyers in this section have manifested little, if any, interest in futures and are taking spot goods only in a small jobbing way at the quoted prices."

Evap. Apples, per lb.	3 @ 4c
Apricots	Nominal
Figs: White	Nominal
Black	Nominal
Calimyrna	Nominal
Prunes: 4-size basis	2½ @ 4c
(Premium: 1c for 40s-50s; 2c for 30s-40s.)	
Peaches	3½ @ 4½c
Pears	4 @ 7c
Raisins—	
Loose Muscatels in sweatbox	2¾c
Thompson's Seedless	5c
Seedless Sultanias	3 @ 3½c

Citrus Fruits.

The orange markets remain in good condition through the country. Navels have been about all shipped out of Cali-

fornia, and sweets, seedlings and St. Michaels are now supplying the trade. A few early valencias are now being sent East. All of these varieties are bringing good prices. On the New York auction Monday, May 13, the average prices for navels were from \$3.20 up to \$5.80 per box. Seedlings from \$2.90 to \$3.65 per box. Sweets, \$2.75 to \$3.60, and St. Mikes from \$3.10 to \$4.40 per box. The various other auction points paid about the same prices as New York.

Lemons are in strong demand, and prices range from \$4 up to \$6.50 per box. This season, though short, the crop of California fruit is extra fine, while there is considerable fault found with foreign lemons.

Shipments from California for the season up to May 11, were: Oranges, 9,495 cars; lemons, 1,217 cars; as against 19,334 cars of oranges and 2,771 cars of lemons to the same date last year.

The local movement of citrus fruits is fair for this time of year, but the demand is naturally somewhat curtailed by increased offerings of deciduous fruits. Prices are well maintained on oranges and grapefruit, but lemons and limes are a little lower.

Oranges, per box—	
Valencia	\$ 4.00@ 4.50
Navels, good to fancy.....	3.50@ 4.25
Grapefruit, seedless	2.50@ 5.00
Lemons: Fancy	6.00@ 6.50
Choice	5.00@ 6.00
Lemonettes	3.50@ 4.00
Limes	5.00@ 5.50

Nuts, Honey, Hops, Etc.

NUTS.

There is no great demand at the moment, but with supplies closely cleaned up, prices are firmly held. The European market is strong, with reports of damage to almonds, while French walnuts are closely cleaned up.

Almonds—	
Nonpareils	17½¢
I X L	16½¢
Ne Plus Ultra.....	15½¢
Drakes	12½¢
Languedoc	11½¢
Hardshells	8 ¢
Walnuts, 1912 crop—	
Softshell No. 1.....	16 @16½¢
Hardshell No. 1.....	15 @15½¢
No. 2	10½¢
Budded	17 ¢

HONEY.

There is not much demand for any grade of honey in the local market just now, though there is no large supply and prices are pretty well maintained. Country offerings of good quality are light, and new stock is not expected to appear in any quantity for about a month.

Comb, white	15 @16 ¢
Amber	11 @12 ¢
Dark	9 @10 ¢
Extracted, white	8 @10 ¢
Amber	6½@ 7 ¢
Off Grades	5 @ 6 ¢

BEESWAX.

Prices stand nominally as before, as the local supply is limited and in strong hands, with little coming in. The demand, however, is small.

Light	30 @31 ¢
Dark	29 @30 ¢

HOPS.

Present values are little more than nominal, as neither buyers nor sellers seem to be taking much interest in the small supply remaining from the 1912 crop, and little contracting is being done as yet for this year's yield.

1912 crop	12½@18 ¢
1913 contracts	13 @15 ¢

Live Stock.

The arrival of dressed meat from Australia and the poor condition of California ranges have not yet caused any marked decline in prices, though there is a little weakness of some lines. Supplies of calves and young lambs are increasing, causing a little cut in prices, and hogs are lower, with arrivals running ahead of current demands.

Steers: No. 1	7½@ 7¾¢
No. 2	7 @ 7¼¢
Cows and Heifers: No. 1....	6½@ 6¾¢
No. 2	5¾@ 6¼¢
(Grass cattle, ½¢ less.)	
Bulls and Stags.....	2½@ 4½¢
Calves: Light	7 ¢
Medium	6½¢
Heavy	5 @ 6 ¢
Hogs: Grain-fed, heavy....	8 ¢
150 to 250 lbs.....	8¼¢
100 to 150 lbs.....	8 ¢
Prime Wethers, unshorn....	5¼@ 5¾¢

Ewes, unshorn	4½@ 5 ¢
(Shorn sheep, ½@¾¢ less.)	
Lambs: Suckling	5½@ 6 ¢
DRESSED MEATS.	
Steers	12 @12½¢
Heifers	11 @11½¢
Veal, large	10 @11 ¢
Small	12½@13½¢
Mutton: Wethers	11 @11½¢
Ewes	10 @10½¢
Suckling Lambs	13 @13½¢
Dressed Hogs	12½@13 ¢

WOOL.

While some buying has been done in the country, the movement is not heavy, as there is little demand in the East. The market is weak, and prices on most lines remain nominal.

Spring clip:

Southern mountain, free..	9 @12 ¢
Northern, year's staple...	14 @16 ¢

HIDES.

A rather weak feeling is reported in dry and wet salted hides, as well as in pelts, with buying confined closely to immediate needs, though values are not quotably lower.

Heavy Steers, over 56 lbs.	14 ¢
Medium	13 ¢
Light Steers, under 48 lbs.	12 @13 ¢
Heavy Cows, over 50 lbs..	12 @13 ¢
Light Cows, 30 to 50 lbs..	13½¢
Kip	14 @15½¢
Veal	17 @18½¢
Calf	17 @18½¢
Dry—	
Dry Hides	24 @25 ¢
Dry Kip, 10 to 15.....	24 @25 ¢
Dry Veal, 5 to 10.....	29 ¢
Dry Calf, 7 down.....	29 ¢

HORSES.

Horses of light and medium weight have been quite numerous in the local market of late, and with a rather slow demand, prices are not very well maintained, though strictly first-class draft stock should bring full quotations. A ready sale is expected for some Shire and Percheron stock that is coming in this week.

Heavy drafters, 1700 lbs. and over	\$300@350
Light Drafters, 1500 to 1650....	225@250
Chunks, 1350 to 1500 lbs.....	200@225
Wagon Horses, 1250 to 1350....	150@175
Delivery Horses, 1050 to 1250..	80@105
Desirable Farm Mares.....	75@ 90

MULES.

1200 lbs.	\$200@250
1100 lbs.	150@200
1000 lbs.	125@175
900 lbs.	75@125

PUBLISHER'S DEPARTMENT.

We have received this week a copy of a new-old book from the H. S. Crocker Co., of San Francisco. The book is entitled "Injurious Insects of the Orchard, Vineyard, Field, Conservatory, Household, Storehouse, Domestic Animals, etc., with One Hundred and Twenty-four Remedies for Their Extermination," by Matthew Cooke, former chief executive horticultural officer of California. It was published in 1883 by the Sacramento branch of the Crocker company. The book was supposed to be entirely out of print, and for years inquiries regarding it were turned down. Recently a number of the books were discovered in a case, in which they were packed over twenty years ago. These few remaining copies are offered by the Crocker company at \$3.50, post-paid.

A dispatch from Rome states that the American agricultural credit men were in session there on Monday of this week. From that point the delegates will go through Austria-Hungary to Germany, where they expect to spend a month investigating the land credit systems of that nation. Since leaving New York, Professor Wickson has had no communication with this office, but we expect a letter from him to arrive in time for next week's RURAL PRESS. However, if his usual article fails to arrive in time, we can assure our readers that this journal will not want for good matter. We have in hand at this time good articles for next week, which will prove interesting and valuable. Among them is one from Col. John P. Irish on the delta lands; another from E. I. Blochman on the weather and crops; another from Marston Manson on the desiccating of vegetables; another from Mr. Woodbridge on citrus frost protection. Read next week's RURAL PRESS.

In this issue of the PACIFIC RURAL PRESS we print two articles relating to silos and soiling crops. We believe that

the scarcity of feed that is prevailing and the greater shortage during the fall should cause every farmer to grow every bit of feed that he can. Catch crops, even on small patches of ground, should be sown, and where possible silos should be built to utilize to the fullest extent these crops. Hay is scarce and high; beef and pork are also hard to get. This week at the Portland Stockyards 9c per pound, the highest price ever paid for beef on the Coast, was given in order to fill the demand. Beef stock all over the Northwest is reported very short, which means that prices will be good this fall and next spring. We hope to print other articles soon on silos and their contents.

WHAT IS OVERSTOCKING?

(Continued From Page 575.)

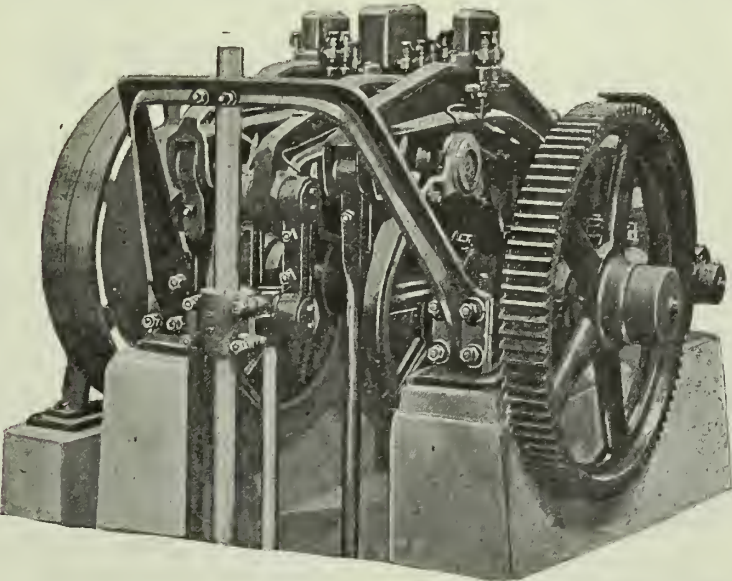
To restore the grasses to herbage country it is absolutely essential that resting and very light stocking be done. If a grazier is skeptical about the result of such treatment, let him carry out a small experiment. A small portion of his estate may be fenced off and rested for a couple of years. More certain success is assured by scattering native grass seed. The writer has seen very beneficial results from this method of treatment, and if the process is continued at periodical intervals a good stand of grass is secured over a very large area, and the carrying

capacity increased enormously.

Most graziers divide their areas into paddocks, but in many cases they are far too large. The larger the paddocks the greater the trampling, and the more the best are picked out, eaten down, and not allowed to seed. In an area of 12,000 acres, say, eight paddocks would not be too many. Once a good stand of grass is obtained in paddocks of limited area, judicious handling of such paddocks will produce a maintenance of the pastures for an indefinite period.

There might well be added to the above some conclusions reached about the effect of proper stocking in New South Wales, given in another article. This also would apply here very probably. These are: that with proper stocking (1) there is no fear of good native grasses disappearing; (2) that many varieties of native grasses will grow together and hold their own; (3) that the more judicious the stocking, the larger the "clump" habit of the grasses, and the more drouth resisting they become; (4) and that no introduced grasses are required to produce good grazing country. For the latter and wherever "native" grasses are spoken of, established grasses whether native or not, can well be meant in California or elsewhere.

A New 10 Horse Power Double Acting Pump Head for Plunger Pumps



This is our new No. 10 Double Plunger Pump Head. It combines efficiency, strength and compactness; starts the load easily without any jerk or jar; runs easily, with no noise and with but little attention.

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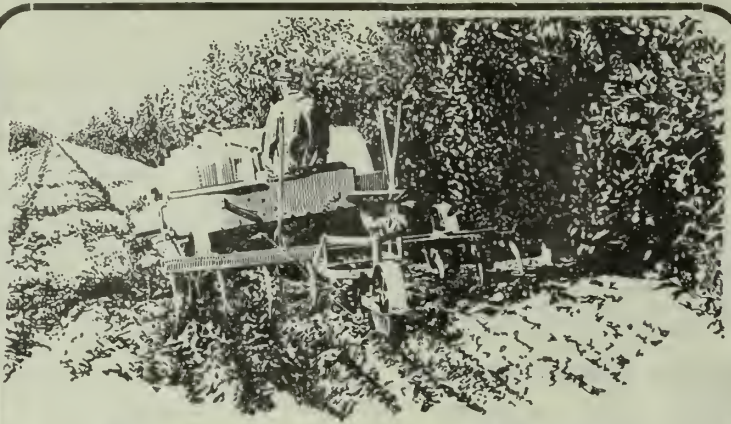
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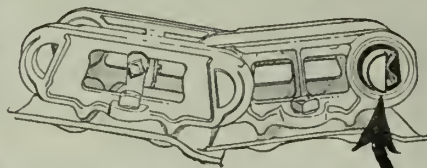


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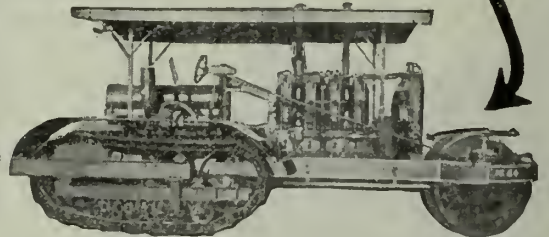
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The utilization of the rocker joint and extremely long bearings eliminates grind and wear, making the tractor the most economical on the market.

The low construction makes orchard cultivating practical—and our All Steel Parts secure unlimited durability. These are only a few of the many innovations of which this new tractor boasts.

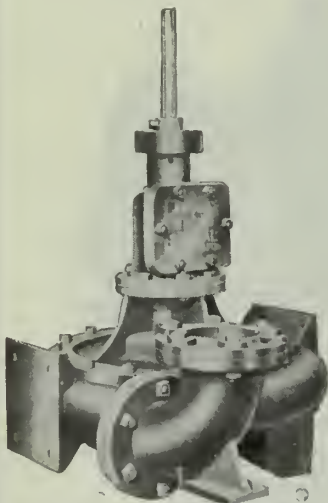
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All Steel Tractor with
Rocker Joints
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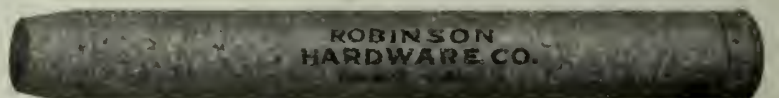
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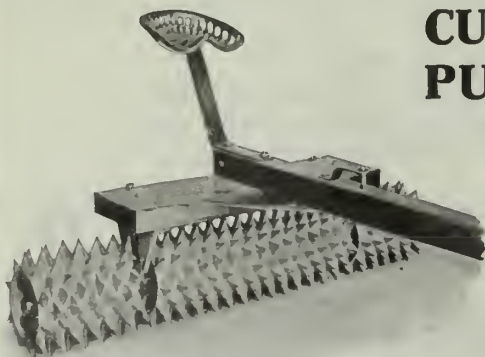
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REDWOOD TANKS I deal direct with the consumer. If I had agents to sell my product it would mean that I must add to my price as much as the agents' commission would be. My lumber is bought direct from the forest. Latest improved machinery. Up-to-date methods. Redwood Tanks, Picking Boxes, Peach Boxes, Drying Trays, Egg Cases. A tank 5 ft. diameter, 2 1/2 ft. deep, \$17.50. A tank 6 ft. diameter, 2 1/2 ft. deep, \$10.50. Large stock of tanks of various sizes in stock. Anything made to order on short notice. Spraying tanks. Grape stakes.

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THE PACIFIC RURAL PRESS

Vol. LXXXV. No. 21.

SAN FRANCISCO, SATURDAY, MAY 24, 1913.

Forty-Third Year.

A Garden in the Delta.

[Written for the PACIFIC RURAL PRESS by JNO. P. IRISH.]

Perhaps the people in our cities know more about the Delta of the Nile, the Yazoo or the Mississippi, than about the Delta of California, where the San Joaquin and Sacramento rivers fall to meet the tides and where silt and vegetation have built 250,000 acres of land which the high tide covered before it was reclaimed. Years ago some of this land was reclaimed by levees built with spade and wheelbarrow, and grain was its only crop. The clam shell dredger was not yet invented and nobler uses of the soil were not revealed. When the clam shell dredger arrived, more formidable levees were possible, and methods of burning the tules and the buckskin without damage to the peat soil, were devised, and attempts were made to diversify the crops. In this respect many advances and as many retreats were made. For sanitary reasons,

were the pioneers who risked life and fortune on the Delta lands, and who came to be known as "Tule hogs," and "Tule hogs" we are to this day.

Well, I had been a tule hog for some years, had pioneered on an island, slept in the sand on a levee and in an ark with two feet of water under my bed, before it occurred to me to go to my Japanese neighbors, study their ways and be wise. I had been warned of malaria, typhoid, the ravages of bacillus coli, and an appalling catalogue of ills. But all the time I had seen the clean and sober Japanese going jocund to their work on the peat lands, each with his bottle gourd of cold tea slung to his plow handle, and I made up my mind that I could do it if they could. The making up of my mind was followed by the making of a house, the "Casa Rio", lifted eight feet above the surface of the ground, with water hot and cold, supplied by wind mill and tank, and with electric lights and quite a lot of the comforts of a home.

Around this house was space for a garden. The soil was virgin peat,



Scene on the Delta Lands near Stockton.

mainly, people would not live on the islands, and do the necessary work. In petite there appeared in the Delta, the same problem that shook a grim fist at the Panama Canal. It was not feared by the Chinese and Japanese, though reclamation was not extensive until after the exclusion law had made the Chinese a negligible factor in Delta farming. The Japanese, with their daily bath, sobriety, generous diet and use of tea to quench thirst, pioneered the way to profitable occupation of the Delta. It is to be regretted that white labor refuses to follow the excellent habits of the Japanese, as a means of securing economic efficiency.

Some definitions are necessary at this point. On the main land south of the San Joaquin river, stretching easterly from Antioch, is a rolling sandy plain. Men farmed it. In a wet season they got a crop, in a dry season none, but in both seasons they got a nick name, for they were called "Sand lappers."

The old "Sand lappers" may all have passed away, more's the pity, for now the sandy stretches, over which they wrought patiently and lost bravely, are covered by the finest almond orchards in the State, and there in the spring time for miles roll the billows of creamy bloom over the sand where the brave and patient sand lappers toiled and lost.

Contemporary with the "Sand lappers" and their near neighbors

with some sediment mixture and several feet down the subsoil of volcanic ash with which in its active age Mt. Diablo covered all the Delta country. Tules and weeds occupied the ground. In subduing it I had a lesson in the botany of the Delta. There were two kinds of dock, thistles, two sort of cockle burrs, grindelia, dog bane, milk weed, smart weed, Indian lettuce, broncho, rye, gramma, fox tail and devil grass, rushes, morning glory and as many more that I could not classify. Most of these had peculiar horizontal root systems, and the roots had rhizomes, and each joint could supply a new plant to order. I dug out some of these horizontal roots that were fifteen feet long. Making my garden was warfare against the army of the autocthons of the Delta. As one kind retreated others would appear like military reserves in a battle. The last advance upon me showed a subtle strategy. It appealed to the memories of my childhood, of many a stomach ache soothed and many a cold "broken up," for it was made by that fine old aromatic herb and domestic medicine, pennyroyal. But it had to go. Such are the fortunes of war.

Do not think, however, that these weeds were unimportant and taught nothing. I had seen the skillful Japanese farmers before they

(Continued on Page 591.)

Pacific Rural Press

Issued Every Week at 420 Market Street, San Francisco.

TWO DOLLARS PER YEAR IN ADVANCE

Entered at S. F. Postoffice as second-class mail matter.

Address all communications and make checks or money orders payable to

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Advertising rates made known on application.

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FRANK HONEYWELL - - - - - Manager
W. H. SCHRADER - - - - - Adv. Manager
D. J. WHITNEY - - - - - Associate Editor

CALIFORNIA WEATHER RECORD.

The following rainfall and temperature record is furnished the PACIFIC RURAL PRESS by the United States Department of Agriculture Weather Bureau, at San Francisco, for the week ending at 5 p.m., May 20, 1913.

Stations.	Rainfall Data.			Temperature Data.	
	Past Week.	Seasonal to Date.	Normal to Date.	Maximum.	Minimum.
Eureka .....	.04	34.14	44.14	62	42
Red Bluff .....	.34	18.12	24.14	86	50
Sacramento .....	.06	7.57	19.73	86	48
San Francisco .....	.13	11.69	21.88	68	48
San Jose .....	.06	5.67	16.49	80	40
Fresno .....	.02	5.90	9.42	90	48
Independence .....	.00	4.10	9.29	84	42
San Luis Obispo	T	7.71	20.06	84	44
Los Angeles .....	.00	12.79	15.46	74	52
San Diego	T	5.81	9.87	66	56

The Week.

There will be no "Out in the World" letter from our editor this week (at least, if it does come, it will be here only in barely enough time to get on the press), for the editor is so far out in the world that the weekly statement of ideas suggested by the trip to Europe has not had time to reach us. The others were written before leaving America, and it takes time to cross the Atlantic, especially if one crosses to Gibraltar instead of to Liverpool, and time for a letter to get back; hence the break in the series. Future letters truly will be from "Out in the World." For as we have said before, since Professor Wickson took up the editorship of the PACIFIC RURAL PRESS, in 1875, he has had charge of the issuance of every issue until he left on this trip, upon which he was sent by the Governor and Legislature of the State, and the next letter will be the first from beyond the limits of our country. Through the work on the PRESS it was that he was brought into the University of California, in which for several years he directed the work of the College of Agriculture and of the Experiment Station until last fall. It is something for every farmer in California to feel proud of—the way that agriculture in the College and Experiment Station has taken an overwhelming lead in the activities of the University, the highest point in education and science in the State, or in the West, as was seen on the day the Seniors received their sheepskins.

Agriculture Leads All.

Praise of the farmer's life may seem idle vaporings from the newspaper and general magazine office (we don't include farm journal offices), but the figures confronting the Californian when looking at the activities of his University show that this is sounder truth than the newspaper backers of the farmer dream of. Look here! In the special appropriations from the Legislature for University work for the biennial period, \$400,000 was appropriated for the regular university work

and \$700,000 for agricultural work in all its branches. In other words, for the total work of the University outside of agriculture, there was given but little more than half as much as for agricultural work. And while we are about it, we will mention the fact that the University of California is in attendance the second largest university in the United States. The work of the agricultural department of the second largest university in the country far surpasses the work of all other departments put together! There is a fact to make the farmer feel that he is really the most important individual in California, as of course he is.

For the other special appropriations, \$135,000 was given for buildings and equipment at the Farm at Davis, and \$185,000 for the land and buildings for the great new School of Tropical Horticulture at Riverside. Special appropriations were large for other activities of the university, but more than half of the \$2,054,000 appropriated by the Legislature goes in some way or other to agriculture. This two million odd dollars is in addition to \$1,802,978 automatically appropriated by law for regular university work, general and agricultural.

Other branches of the university deal very largely with education exclusively, agriculture to both education and to the assistance of the private citizen. General work touches few persons except those in attendance; agriculture is the one method by which the university gets in actual contact with the citizen, and impresses him with its existence and value. The farmer, with some small assistance from fisherman and miner, carries the public on his shoulders, and it is but fitting that he be given the recognition that is thus given. It is the work that has been done by the College of Agriculture and the Experiment Station that has developed this recognition. The agricultural industry as represented in the University of California is only now coming into its own. With this popular and this financial support it is given the opportunity to do great things.

A Recognition of Merit.

Every year at Commencement, recognition of men who have achieved things and made the world more fit to live in is given. Five men thus received the honorary degree of Doctor of Laws in Berkeley last week, and in the five a leading agriculturist was found. It is just a funny little fact, however, that in the record of John Swett his connection with agriculture was overlooked. Despite the prominence which agriculture has forced itself into, those who are not in actual touch with it overlook it in many ways.

This is the record given in stating why the degree was merited:

John Swett, son of New Hampshire, a product of the old academies which glorified its hilltops. In 1847 first a teacher in a district school; 60 years ago principal of a San Francisco grammar school; State Superintendent of Schools from 1863 to 1868. For thirteen years principal of the Girls' High School and Normal School of San Francisco; author of a history of the public-school system of California, 1876; creator and modifier of our school law; more than any man who lives or has lived, responsible for what is best in our California public schools. Teacher and friend of teachers; educational statesman.

The good sense which made his teaching so effective, his ideas so worthy, was demonstrated when he left the city for the Alhambra valley, near Martinez, and established a farm and an industry which makes his name known agriculturally and commercially throughout the State. Long before the College of Agriculture was recognized as having any outstanding value, John

Swett saw that agricultural education was far greater than law, medicine, or those branches which many youths think they will take up in order to set the world on fire, and his son, Frank Swett, was one of the earliest graduates of the College of Agriculture, proving subsequently the value of scientific agriculture that is only now being generally appreciated. In the record we print above, agriculture should be included.

In the list of those similarly honored are two lawyers, a clergyman-educator, and a naturalist, the latter, John Muir, also a farmer, a neighbor and friend of John Swett, and it is safe to say that as another generation passes and the men starting out in life now reach the age when honorary degrees are conferred, that farmers and scientists in agriculture will take a leading part, and lawyers and men connected with city life only will be those who "also were given degrees."

INFLUENCE OF THE JAPANESE.

Not only is there active interest in California regarding the anti-alien land law, but also all over the country, and, it is said, in other countries also. As usual, when a person wants reliable information on any subject relating to California agriculture, he writes to the PACIFIC RURAL PRESS, and so it is no surprise to receive the following letter:

To the Editor: I have been referred to you, editor of the PACIFIC RURAL PRESS, as one able to give me desired information in regard to the Japanese. I should like to know what is their influence on the industry in your community, also your personal impressions in regard to them.

WILLIAM F. SLADE,

Assistant in History and Economics, Bates College, Lewiston, Maine.

The letterhead also shows that Rev. Slade is president of the Maine State Christian Endeavor Union.

Unfortunately, the editor is so far from California that if he crossed another continent he would get to Japan itself, and the answer will have to come from what is left of the staff, which may not think just what the editor thinks.

Racial Impressions.—To start off with the last part of the question, the one regarding the impressions of the Japanese, would emphasize strongly the fact that the racial characteristics of this or any other people is not a fundamental point when it comes to invading a white man's country. The Japanese in many ways are greatly to be admired, but we can say that it is the almost unanimous sentiment throughout California and the Pacific Coast that it is not a good thing in any way to have Orientals in a white man's country. The Legislature was practically unanimous on the anti-alien land bill, which was born of that thought, and the people will be equally unanimous if enough signers can be found to put the matter up to a referendum vote. While the people may be wrong, the mere fact of such overwhelming public opinion is pretty good indication that it is not best for two races to live side by side in the country of one of them.

The Japanese are a very competent race and first-class laborers. An outstanding characteristic which causes distrust here is their tendency to "look out for number one"—to try to get ahead and to get an advantage in every way possible. If they were a shiftless, hand-to-mouth people, there would not be so much objection to their presence; but it is the fact that they do try to get the inside track on nearly everything they touch that causes much of the belief that it were better for the country not to have them here.

For instance, they will work for nothing, so to

speak, in order to get at the inside of an industry, whether it be berry-growing or what not, and by working for nothing they drive out competition; but after gaining the control they are the champion trust operators when it comes to putting prices or wages up and keeping out competition. One of the strong points of the Japanese is the ability to organize and stick together, which makes it very easy for the large employer to get Japanese help where otherwise he would have to hire and watch white labor individually rather than Japanese collectively.

This same organizing facility, by the way, is one reason for the distrust of them. After the anti-alien law was proposed, for example, resolutions were passed against it by Japanese organizations galore, from every industry they touch or from every part of the State. They are so well organized we distrust them.

No Citizenship.—There is a fairly strong sentiment through the State, also, that land ownership should be by citizens only. It was very largely through the efforts of persons to make it appear that the legislation was aimed at the Japanese that kept the law from applying to all aliens, for since opponents of the proposed law tried to make a Japanese matter out of it, the perpetual Japanese talk finally made it only a Mongolian or Oriental proposition. It takes time to do things, and there is a strong probability that the law will in a few years be made to apply to all non-citizens.

There is just this to be said on that matter. Eastern Asiatics never can be Americans in reality except in rare cases. There is little doubt but that, if citizenship were permitted by law, nearly all the Japanese that come here would soon apply for citizenship, but it would be a marvel if one in a thousand would consider his citizenship anything but a method of obtaining a lot of privileges, and each one would grow in loyalty to the Mikado the oftener he voted. At least that is the general impression here, and everyone thinks nothing else but that it would be as difficult for a Japanese to become an American as for a Caucasian to become a Japanese. A Japanese would laugh at the latter proposition. Therefore, as long as they never can be citizens, and their presence is unfortunate for public welfare, we can fully say that an anti-alien land law is a good thing, and that it should apply more strongly to people who legally cannot and temperamentally would not be citizens than to aliens who can and will be citizens.

Influence.—The influence of the Japanese has been unfortunate, to come down to details, in that it has driven white people from industries into which the Japanese have come. A white man will not work side by side with an Oriental nor a negro if he can help it, even if he can compete with him; and, as we have said, even aside from the Oriental's willingness to work for long hours for small pay when he can't get large pay, the Japanese, to a much greater extent than the Chinese, will work for little or nothing with the deliberate intention of driving out competition. It is a common opinion that the Chinese only goes into a business for the sake of making a living, and cares nothing about competition as long as he gets along, while the Japanese thinks of the big compensation he can receive when the competition is killed.

Japanese, for example, will pay an outlandish rental for a farm, losing money, possibly, as far as the year is concerned, when an owner, with little care for neighbors or the future, thinks only of the temporary big returns. This high rental, since no one likes Orientals for neighbors no more than they like negroes for neighbors in

the Eastern cities, depresses rentals all over the neighborhood, and they get surrounding farms for less rental than ever and have the lease the second time as much below a fair price as it was first above it. The same thing occurs in towns, for when a man wants to sell a house that nobody will buy, all he has to do is to threaten to sell or rent it to Orientals, and his neighbors buy him out in self-protection, with back-handed blessings for himself and the Orientals. The same thing occurs with negroes as the lever in towns to a very slight degree, though the fact that the Oriental is the most available club makes it usually unnecessary to use the negro as the renter.

There can be other illustrations brought up to show the unfortunate conditions resulting from having a non-assimilable race come here. The actions of the Japanese have possibly been no better than those of the white races in endeavoring to gain money, but it is a bad condition all around.

It is said by a few large growers that they have to hire Orientals because white men will not work. Well, white labor could be found, perhaps less productive and more expensive than Orientals, but at least it is admitted that the hiring and presence of Orientals makes white labor still more unavailable and unreliable than it otherwise would be. Better by far for the public and the State to have many white families on a tract in an industry rather than many Orientals, who would make much money for a few years for the land-owner, only to get such a hold on the land or industry that before long the owner becomes nearly helpless, the prices he has to pay higher than he would have to pay white labor, and ultimately the prices to the public for the product higher than at the start.

The Oriental, including the Japanese, has lots of admirable characteristics and may have better ethics than Europeans would have in their place—maybe not—but it doesn't do to have two races in the same land and in competition; their influence therefore is unfortunate. The opposition to the mixing of races in the South is well founded, as is also the opposition on the Pacific Coast, in Australia, New Zealand, and wherever black and white, or yellow and white races have met in competition.

Queries and Replies.

Querists must submit full names and addresses.

Scales on Citrus.

To the Editor: Will you kindly send me a recipe for the treatment of white and black scale on citrus trees, or refer us to some number in the RURAL PRESS?—E. E. P., San Francisco.

The black scale, through its general distribution, is the most serious scale on citrus trees in the State. What you refer to as the white scale is probably the red scale, but we cannot be certain without knowing your location or details. The method of control is fumigation with hydrocyanic acid fumes. A tent is put over each tree and cyanide put into sulphuric acid. This work is done at night and is usually done by contract or by co-operative organizations, or under the direction of the county horticultural commissioner. The amount of cyanide to use is determined by the size of the tree in various ways which need not be described here, but with which the fumigating outfit will be thoroughly familiar. We would advise you to send a letter to the county horticultural commissioner of the county in which your trees are located, asking him who can do your fumigating. It is done, by the way, in the fall. There is an interesting discussion

of the matter in the PRESS of January 6, 1912. There are also three bulletins on scales from the University of California and a bulletin on "Fumigation Scheduling" by Woghun, issued by the U. S. Department of Agriculture.

Since the above was written, a visitor called to ask about the control of the cottony cushion scale, using the term "white scale." The only thing to do when this appears is to send to the State Insectary at Sacramento for some *Vedalia cardenalis*, a ladybird that cleans out this scale completely if given enough time. Although this scale once threatened to destroy the citrus industry of the State, the *Vedalia* cleaned it out so thoroughly that it is seldom seen and never a pest unless the grower neglects to get some *Vedalia* when it shows up. The county horticultural commissioner might be able to get some quicker and easier than it could be obtained from Sacramento, but colonies of *Vedalia* are always kept at the insectary and are sent out immediately on request.

Topping Thompson's Seedless Vines.

We forwarded a question regarding topping of Thompson's Seedless vines to Prof. Frederic T. Bioletti, of the University of California, and have received the following reply, which gives a great amount of very valuable information on the subject in a very small space:

In answer to your correspondent regarding the topping of grapes, I would say that the experience of growers of Sultanina or Thompson's Seedless vines in general is that topping is useful if done properly.

Topping of vines is in all cases more or less weakening. The more foliage that is removed, the more weakening it is. Vines, therefore, which are making a weak growth from any cause whatever can only be injured by topping. If the vines are exceptionally vigorous, the weakening due to topping may be an advantage by making them more fruitful. As Sultanina vines are nearly always very vigorous, topping is usually advisable. The topping, however, must be done with discretion. Early topping in May is much more effective and less weakening than later topping in June. Very early topping before blossoming helps the setting of the blossoms. Topping in general increases the size of the berries. If the topping is done late or is too severe, the grapes do not develop sugar properly, and therefore do not make good raisins. In any case, topping should leave eight or ten leaves above the bunch. If the topping is done early the cane will send out laterals which will develop the necessary leaves. Moderate topping of the fruiting shoots then can, in most cases, be recommended. The same kind of topping would also be applied to the shoots from the replacing spurs, the shoots which are to supply the fruit canes for the following year. This topping must also be done early. Its object is to cause the production of strong laterals or side growths in the axils of the leaves. These laterals will furnish excellent fruit buds for the following year. During the next winter's pruning one or two buds are left at the base of each lateral on the fruit canes.

Black Medic.

To the Editor: Will you kindly name the enclosed also explain its value as forage.—E. S., Glen Ellen.

The plant is black medic. It has been very widely distributed over the State during the last few years. It is sometimes called a new burr clover, which it somewhat resembles. It is not very freely eaten by stock and is apparently inferior to burr clover for forage purposes. It is a good plant to plow under for green manure.

Smudging Costs.

[Written for the PACIFIC RURAL PRESS by
T. R. WOODBRIDGE, Upland.]

Now that the blossoms are showering out on the citrus trees and summer seems really in sight, we growers are chirking up with the regular, though slightly different, summer hopefulness. This difference lies in a very apparent lessened confidence in the doctrine of chances concerning the next winter's weather. And whereas, last summer the greater number said, "Oh, well, that was an unusual winter, such as comes but once in twenty years, so I am safe in taking a chance this coming winter," the greater number this summer are studying ways and means and costs of smudging. And while the householder certainly has his, or her, side of the smoke argument, my own experience, although I live on the leeward side of my grove, permits me no other conclusion than that fruit and tree insurance by smudging is only good business.

In comparing notes I have found so many and so large variations in estimates of the cost of last winter's smudging, largely due to the difficulty of keeping accurate records during such a time of stress, that it has occurred to me that I might be able to contribute something toward the solving of the problems from my own cost-sheets, with a few conclusions of my own concerning what they teach. If they prove to be of any general interest, I shall be pleased to hear from others as to their costs.

A few words of explanation may be necessary. I have three groves, No. 2 and No. 3 being adjoining and containing my own house, the house of my foreman, the barns, oil reservoir, etc. Another grove, No. 1, is situated about 1½ miles north of the other groves, making a long uphill haul for the oil wagon. I have owned this No. 1 for five years, during which time it has barely been touched by frost till this year, and I was laughed out of giving it the complete protection I had at first planned. So that the few pots I finally put there, coupled with an incompetent fireman, who went back to bed while the thermometer dropped seven degrees, made such firing as was done of little effect, with total loss of all fruit and some damage to the lemon trees. On account of the distance from the oil reservoir and from headquarters generally, the operating costs for this grove were higher than for the others.

No. 2 contains 5 acres of lemons and 5 acres of navels and valencias. No. 3 contains 5 acres of navels and sweets. Although in the middle of January last I estimated my total saved crop to be worth \$500, my shipping returns for oranges alone will be not so very much less than last year and will have repaid me considerably more than the entire cost of the total smudging, even should I charge off permanent equipment. Aside from this, I am getting a small regular monthly picking of lemons, while the fact that 5 acres of lemon trees, instead of promising idleness for three or more years, are in a normal condition for next year's crop, is of itself sufficient return for all the expense and hard work.

The frost of 1911-1912 caused me to lose very little fruit and did no tree damage; but like many another grower, I began to wonder what would have happened had the temperature fallen a few degrees lower and stayed there for any length of time. In this state of mind, I could not rest easy till I had established some insurance against frost damage. After procuring all the local data available from those who had smudged in previous years in this general district, I concluded that at the worst I would be obliged to smudge no more than five nights, or a total of 30 hours. But in order to be safe, I laid in enough oil for ten firings, with a total of an estimated 120 hours. As a matter of fact, No. 2 lemon grove of five acres was fired 17 times of from 3 to 15 continuous hours per night, with a total firing of 121 hours. In the middle of the big freeze, not frost, of last January, my first 15,000 gallons of oil gave out and our little bunch of five oil smudgers, by persistent effort, got a special train which delivered something fluid and oily which we managed to burn. My share of this shipment was 15,000 gallons. The first oil

burned without asphalt residue, whereas this last shipment seemed to be one-half asphalt; however,

we were glad to get anything that would burn. The loyal actions and the unselfishness of everybody during that historical week, including my foreman, who never seemed to sleep, the workmen who cheerfully responded to any call, the automobile oil delivery man who worked his ear

SMUDGING COSTS, SEASON 1912-1913.

SHEET NO. 1.

EQUIPMENT.									
Pump									\$ 8.85
Oil wagon									\$ 79.29
Oil wagon tank									58.30
									137.79
Eight Adamson torches									10.30
Six filling buckets									6.45
1800 pots									\$760.50
Wagon haul									27.00
Painting									35.30
Rack for assembling									1.25
									824.05
15,000-gallon cement reservoir									
Labor, materials, and cleaning grounds									\$414.73
Piping									3.50
Tools									5.00
Hose piping									8.10
									431.33
Gasoline measures									\$ 1.05
Oil cans, gasoline in the field									3.90
Lanterns									1.80
Thermometers									9.50
Thermometer stands and reports									10.15
									26.40
Total equipment									\$1,445.17
SUPPLIES.									
200 gallons gasoline									\$ 36.30
20,776 gallons smudge oil									676.38
Freight and haul smudge oil									194.88
									907.56
									\$2,352.73
OPERATIONS IN FIELD.									
		Field Work with Pots.							
	Watchman.	Fitting and placing.		Filling with oil.		Firing.....	Painting...	Cleaning...	Moving.....
		Labor.	Team.	Labor.	Team.				
Grove									
No. 1.	\$15.00	.....	.....	.....	.....	.....	.....	.....	\$ 15.00
		5.42	7.50	.....	.....	.....	.....	.....	12.92
		.....	.....	17.04	23.50	.....	.....	.....	40.54
		.....	.....	.....	.....	18.25	.....	.....	18.25
		.....	.....	.....	.....	.....	3.65	.....	3.65
		.....	.....	.....	.....	.....	.....	3.17	3.17
Grove									93.53
No. 2.	\$17.8	.....	.....	.....	.....	.....	.....	.....	\$ 31.78
		9.01	15.56	.....	.....	.....	.....	.....	24.57
		.....	.....	83.60	22.58	.....	.....	.....	106.18
		.....	.....	.....	.....	99.43	.....	.....	99.43
		.....	.....	.....	.....	.....	8.75	.....	8.75
		.....	.....	.....	.....	.....	21.58	.....	21.58
		.....	.....	.....	.....	.....	.....	7.53	7.53
Grove									299.82
No. 3.	15.00	.....	.....	.....	.....	.....	.....	.....	\$ 15.00
		3.67	5.00	.....	.....	.....	.....	.....	8.67
		.....	.....	37.41	14.62	.....	.....	.....	52.03
		.....	.....	.....	.....	30.00	.....	.....	30.00
									105.70
	\$61.78	\$18.10	\$28.06	\$138.05	\$60.70	\$147.68	\$12.40	\$21.58	\$10.70
Total field									499.05
Total expenditures									\$2,841.78

SHEET NO. 2.

Depreciation and Interest:		
On pots, 33¼%	\$274.68	
On balance of equipment, 20%	124.22	
		\$ 398.90
Supplies, oil and gasoline, 5000 gals. oil on hand about.		
200 gallons gasoline	\$ 36.30	
25,776 gallons smudge oil	730.26	
		766.56
		1,165.46
Team work in field	88.76	
Labor in field	410.29	
		499.05
Total operating cost for the season		\$1,664.51
Depreciation, interest and supplies are charged to the separate groves in proportion to the amount of oil each consumed.		
No. 1—5 acres lemons, 10.5% depreciation, etc., \$122.37; field work, \$94.49		336.90
No. 2—5 acres lemons, 45.2% depreciation, etc., \$526.80; field work, \$205.33		732.13
No. 2—5 acres oranges, 20.8% depreciation, etc., \$242.41; field work, \$94.49		336.90
No. 3—5 acres oranges, 23.8% depreciation, etc., \$273.88; field work, \$105.70		379.58
		\$1,664.51
Average cost per gallon of oil consumed, \$0.065.	Average cost per acre, per hour of smudging, \$1.24.	

continuously for I don't know how many days and nights, and who apparently ate and slept in the driver's seat, will ever be forgotten by any of us. However, that is "another story."

Referring to Sheet No. 1.

Pots.—These are the California Double Stack pots. They were placed one to the tree, except in No. 1 grove, which, as before mentioned, was inadequately protected. These pots fell far below their rated burning time, making it necessary, when a long period of firing seemed ahead of us, to light every other row at first, following with the other rows as the first began to burn low. This undoubtedly prevented effective smudging, and was the cause of most of the loss in groves using this pot. Had their short burning period been realized, many would have protected with double the number of pots and would have probably saved the whole instead of a portion of their fruit. These pots were all painted before being put into the field, but as this coating has burned off they are again being painted to keep from summer rusting.

Thermometers.—Six growers who smudged in this neighborhood employed a night watchman who recorded the temperatures about every hour and a quarter, calling the grower when the temperature fell to a certain degree agreed upon. I had six of these thermometers in as many observation points. Few of us will ever forget the sickening, rebellious sensation near the end of the smudging season, caused by the watchman's cry beneath the window or over the telephone: "30 in the lemons and ice in the pan!"

Gasoline.—I tried distillate, but found it not as effective as the gasoline, and finally yielded to the wishes of my men and used the latter exclusively.

Operations.—Even in the case of my employees engaged by the month, all night work was paid for extra, and all labor connected with smudging, whether by day or by night, was paid for at the same rate per hour. This rate was an advance on the regular daily wage, it being understood that in consideration of such an arrangement I could have as many men as I wished and at any hour necessary. This worked to our mutual satisfaction. My own team did all the work, the time being figured at the going rate here for team and man.

The last three columns in the table represent the cost to date of getting ready for the next year's fight, with the expense of moving the pots here and there out of the way of the team while plowing, etc.

The balance of the table is probably self-explanatory, and several deductions are possible from the figures given. For instance, the fourth, fifth, and sixth columns total \$346.43 and represent the total field work in labor and teaming. This is about 1 1/3 cents per gallon of oil burned.

Again, many are considering the advantages of piping their groves for delivering the oil from the reservoir to every third or fourth row one way, and to every sixth or eighth row the other way in the grove. From the faucets at these delivery points the oil is taken in buckets to the pots by hand labor. The labor cost of filling the pots from these faucets will apparently be greater than from a tank wagon, as the wagon can be taken up every third row and stopped at every cross-row with a shorter walk for the men. As shown in column five, my cost for delivering in the field (even with one grove 1 1/2 miles distant) 25,776 gallons of oil, is \$60.70. This amount would seem to be very much less than the yearly interest and depreciation on any system of piping. It seems to me also that there is a real danger to the entire grove, and a danger which might be discovered too late to prevent, through leaking of the oil from a deteriorated pipe-line, whether it happened in five years or in fifteen years after its installation. Where the softness of the ground during the rainy season prevents the use of a heavy oil wagon, it would seem a better way to store sufficient oil around the grove in small containers before the rains. The cost would be much less.

Referring to Sheet No. 2.

In this I have summarized some of the costs for guidance for next year, should there unfortunately be need of mudging. All costs are taken

from my regular grove books. The material, equipment and supply items are, of course, accurate; the labor items, which are taken from the daily reports turned in by my workmen, are accurate to within a half hour on each day's subdivisions of labor.

Conclusions.—After the pots are lighted at night, one who is merely watching has plenty of time to mull over the matter and to draw certain conclusions, more or less correct. Every person may see the subject in a different light, so that it is with much meekness and in the spirit of a beginner that I offer here what has made an impression upon me during this last winter.

Two, three, or four small fires to the tree are more effective than one larger fire to two trees, or even to one tree; with a steady drift, not a blow, of the wind through the grove, I have found cold spots on the sides of the tree farthest from the single fire.

Pots should be of as few parts as possible; should have few joints, especially sliding joints, which make later cleaning slow, if not impossible, or destructive of the pot; should take up the minimum of room in the grove, so that the general farm work can be carried on by the ease and cheapness of rehandling the pots, should it be necessary, as this year, to keep them in the field late in the spring; they must be cheap; capacity is still an unsettled question, though I can see no objection to the smallest size that will surely burn one whole night, with extra oil in

a nearby cheaper storage can. The large capacity pots I have seen have a faculty of distilling and burning off the lighter oils as they are refilled, leaving more and more of the asphaltum residue which makes the later lighter more difficult. We ended the season with 2 inches of asphalt in a 3-in pan, though we have found we can burn this out by taking the pot to pieces and at a cost of from 2 to 3 cents per pot.

Great care should be taken not to spill the oil in the grove while filling pots. My foreman's orders were to discharge any man spilling the oil, and though this made the filling a little slower, I have not had to take out of the field a ten-gallon can of the oil-sprinkled dirt.

The fires should be massed heavily on the windward side or sides of the grove unless the windward neighbor smudges equally consistently, and even if such a plan leaves the leeward side of the grove out of pots for a few rows. Neighboring groves to the leeward of mine show good fruit for ten rows with the wind. This I find is true everywhere.

One must not be stingy with the firing. One missed cold night will undo all the good of twenty previous firings. If one has wavered all night as to the necessity for firing, he can prevent much if not all damage by firing from say 5 to 7 a.m. or till a half-hour after sunrise. Last year I did not believe, as I do now, that the smoke itself is of value. With this rather unpopular statement, perhaps, it is well for me to close this paper.

An Erratic Season.

[Written for the PACIFIC RURAL PRESS by
L. E. BLOCHMAN, Berkeley.]

This winter season, now about over, has been the most erratic of any since meteorological records have been kept; and in San Francisco, Sacramento, and San Diego these date back to 1849. The season has a background and a foreground of abnormality.

The background lies in the unusually cool summer preceding it and also in Arizona's very light summer rains. Time and again the latter factor has been a forerunner of short rainfalls in our following winter, but we have not heeded this fact sufficiently for its bearing on our periodic rainfall to the north. Since 1851, taking the records of Sacramento, this season has had the least rain.

The foreground—as we call it—of this season's abnormality is in the heavy early rainfall, giving us for the Central and Northern part of the State, the heaviest untimely early September rains of any season in sixty-four observed ones. One only approximated it; the season of 1851-52—a short rainy season, but not as dry as this. Then came the serious cold spell early in January which was the coldest weather ever experienced in this State and took its toll in millions of dollars of damages in the citrus districts.

Then, as a freak season, it poured down in February for two and three days south of the Tehachapi and remained dry to the north. Subsequently also in March it rained from the bay northward with very little rainfall in the south. Then in the latter part of April the erratic rainfall reversed itself; Sacramento and San Francisco bay regions received light showers while Fresno and Bakersfield received an inch, and it also rained fairly well from Santa Barbara southward. This was caused by an inter-mountain storm area. The usual path of the storms strikes in from Washington, Oregon, or northern California and the storms are then deflected southerly, decreasing as they tend southerly. But this storm area, as with most in drier seasons, struck the coast too far to the north, continuing apparently in the summer course, forgetting that winter had come, and California lands are athirsting.

California Climatology.—We cannot enter into details of California climatology, but let these facts be told: Our entire Pacific Coast has what is called periodic rainfall while on the Atlantic side it may rain at any time of the year. We, here on the coast are dependent on the moist rain-bearing currents that originate on the South East Asiatic coast, and then traverse the Pacific Ocean. They strike in off the south Alaska to the Aleutian

Island coast in summer, giving us in California no rain. But during winter months the same rain-bearing currents strike in approximately 1000 miles further south, placing us within its rain influence. And why, and why also has this season given us only partial rains, next to the least in over sixty years of observed weather conditions?

There are two prevailing weather factors in determining the movements and precipitation of rain areas; the low barometer (pressure) area and the high barometer area. The high, as it is technically called, controls and governs the low, in which the rain circulates in whirls or in wide cyclonic areas. A very high barometer is a cold body of air, either stationary or in movement. In normal winters, the cold from Arctic Alaska moves southerly quite a distance and therefore this high barometer area forces the (low) rain-bearing area a proportionate distance southward.

When, as in this season, Nome, Tanana, Eagle, under the Arctic Circle report warm open winters, we know that the normal cold does not exist. Therefore, only occasionally is a storm area deflected southerly just when a temporary cold spell ensues. And therefore, there is a dearth of the usual Washington and Oregon low barometer areas so prevalent in normal winters. Instead we have had almost permanent high barometer areas over Oregon and north central California as in summer.

The Southern Storm.—During the third week of last February, this high barometer area was so extensive in its area and reached so far to the north of its normal course, that one of these (Cyclonic) rain-bearing areas coming across the Pacific could not find any entrance in its course, and was forced to pass to the south of the high barometer area. From the fringes of every high there is a somewhat lower barometrical area, so that this storm first entered below the bay region, and gave an enormous precipitation between Santa Barbara and a little above San Diego. Normally it would have entered off the northwest coast and moved slowly southward distributing its precipitation over a large area; but forced to a small limited area, it gave that big February rain for Southern California, lasting more or less for three days, and giving a phenomenally large rain in a dry season.

This peculiar condition of heavier rains south when the storm centers range so far to the north as in this season, is evidenced further by the season of 1850-51; the only known season when San Diego's rainfall exceeded that of San Francisco.

The rainfall over the agricultural districts of the State is distressingly short. It is not noticed at present as much as its effects will show later on.

In Sacramento, with an average rainfall of 19½ inches, only 7½ inches fell this season, a semi-arid condition, much less than in the dry season of 1897-98, and less even than in the dry season of 1876-77, and just about equal to the more serious drouth of 1864.

Only for the fact that the rainfall was better distributed, would this season have been equally calamitous for the central and coast parts of the State. In southern California the one single rainstorm of February, referred to above, saved that part of the State from drouth. Springs and wells are failing everywhere; they are lower than ever before. For instance, the water-supply from the run-off of Lake Chabot, supplying the east bay cities, was already so light last year that pumping water from the flats below had to be resorted to; this year it has to be considerably increased to keep up the needed supply. Grain and hay crops are very short all over the State, unless in the very few localities irrigated and in the upper Sacramento valley where the rains were heavier.

CROP MANAGEMENT.—There are many places already where the cattle are now eating up the short grain fields, being too short to be mowed for hay, and the grass being shorter than its usual size. But alfalfa is redeeming the State from its hardships of the drouths of 1877 and 1864. The first alfalfa cutting is now on in most places, and though lighter than in normal seasons, it is disproportionately better than adjacent grain fields.

But—and here let me give alfalfa growers a bit of advice—the snows are not overly plentiful in the Sierras, and the recent early hot spell is melting it fast, so irrigate all you can now. Flood your lands thoroughly while the irrigating ditches are yet full, so that if they get short in July, August, and September, the thorough irrigation will keep the root thrifty, even if the plant grows but little on top.

Now as to the trees, they will be hit hard unless irrigated before the end of the season. San Jose, for instance, has 5½ inches of rain; the Livermore valley proportionately the same: one-third only of the usual average and scattered over a period of eight months, no single rainfall being cumulative enough to soak down to the roots. Stockton, Fresno, San Luis Obispo, Santa Cruz districts are nearly all likewise short. Even wet Lake county and the Sonoma valley that have good grass and fair grain, are very short of their normal rainfall. And all this following last year, which was not up to normal.

FORMER SEASONS.—Are we getting ominous of our rainfall? Not in the least. Five times in the history of the State since 1849 have there been two light rainy seasons in succession, but never a third one. The first set were the season of 1850-51 and 1851-52; the second set were 1862-63 and 1863-64; the next 1869-70 and 1870-71; next 1897-98 and 1898-99; and lastly, 1911-12 with our present 1913. Full normal rainy seasons followed these seasons. The first drouthy set was bounded by two excessively wet seasons, fore and aft; so also the single dry season of 1876-77.

There is a recurrence of wet and dry seasons on this coast following no known rules. Those who would forecast seasons by sunspots or by any planetary causes have so far failed in their prognostications. As we have referred to, we know that it is attributable to winter climatic conditions in Alaska and northwestern British America. At the same time also, a warmer Eastern winter prevails because there is not the normal cold coming down the eastern slopes of the Rockies as in usual winters.

The cold, however, has shifted, being colder in that part of the Arctic Circle north of Europe, as has been the case this year and last. The East as far as Labrador and Newfoundland is apparently in the season's warmer belt, for the icebergs are way to the north of their usual course. Why this shifting of the Arctic colds we do not know. Perhaps Amundsen may study into the matter; but even if he does, would he be able to forecast any length of time ahead? We doubt. To us a cold summer and a dearth of Arizona rain seem factors in the case, but they have not been sufficiently compared and noted for exact forecasting. A third factor: very early heavy rains seems to indicate some abnormal distribution of high and low barometrical areas which seem to follow into the incoming season. And yet there are exceptions: the dry season of 1863-4 had no early rains whatever.

Our Pacific Coast climatology has so few scientific friends that we shall be a long while groping for data to even theorize on. The weather bureau is doing what it can in daily observations, in tabulation, and in its various investigations. But the accumulated data are limited after all; this is only the second or third year that we get daily wireless reports from Alaskan stations, and we get none from the west coast of Mexico or Lower California that might help us in sizing up normal or abnormal barometrical changes in the preceding summer months. Vessels out on the Pacific are in continual wireless communication with us, but the government is too short-sighted to pay any of them for reporting meteorological data, which would be of great value if systematically kept up, in watching movements of water currents and, through the barometer, the air currents.

We could discuss our Pacific Coast climatology at further length, but we have already encroached on this journal's space. Again, we shall have a recurrence of wetter and of average seasons, and, from the history of the past, it may be a long interval before we get a dry season anything like this.

AUSTRALIAN LEMON CURING.

From an exchange, in South Australia the following about a lemon curing device is taken. It should be good, if true, and if the method of operation is not too expensive, for it would be a good thing to be able to cure the fruit in such a short time and have such fine keeping qualities result. The clipping says:

Giving evidence before the Fruit Commission in Hobart on January 28, W. E. Shoobridge gave some interesting particulars regarding his patent for lemon and orange curing. He said the fruit was forced through a chamber by a big fan, while the air was regulated by steam heaters. The floors were movable, to facilitate handling. He had first experimented with hops, and had been very successful. He could cure oranges and lemons in 24 hours. A plant to cure 200 cases a day could be erected for \$40,000, and double the quantity for \$60,000. A kiln was to be erected at Parramatta, and patent rights were likely to be secured for New South Wales and Queensland. All sorts of fruit could be dried, and the process gave it a better flavor. Lemons so treated had been kept for nine months in splendid order.

A carload of walnuts was received at Los Angeles recently which came from Grenoble, France. This is the first car shipment that has come to California for a long time, and was made possible owing to the scarcity in the markets.



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In farming, like in anything else, you've got to get at the bottom of things to find trouble or to get good results. A good solid foundation is necessary in everything.

It's what's under your soil that's responsible for what's on top of it. Now what is under your soil? Is there a good fertilizer beneath it?

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244 California St.
SAN FRANCISCO

A GARDEN IN THE DELTA.

(Continued From Page 585.)

leased Delta lands, make careful examination of all the weeds, their foliage, flowers and root systems, and had learned that rushes proved that sediment was a constituent of the soil, and that devil grass marked fitness of the ground for celery; the Japanese consulted all weeds, and by the nature study were guided in the location of their crops.

Out of the weed patch rose the Garden in the Delta. It is there now, a joy to agricultural heart. It has produced peanuts, celery, strawberries, lettuce, radishes, peas, string beans, and that prince of shell beans, the frijole Romani (do try it with sweet corn in succotash) cabbage, rhubarb, horse radish, chives, onions, sweet corn, tomatoes, cucumbers, casabas, cantaloupes, watermelons, zech-chinas, Swiss chard, beets, carrots, parsnips, gumbo, and head and root artichokes. Why both are called artichokes I don't know. One is a thistle, and we eat the blossom bud. In the Delta garden is a French sort with buds nearly as big as the crown of a man's hat. The other kind is a sun flower. Its proper name is girasole, which we corrupt into "Jerusalem" artichoke. Many years ago I brought into this State a variety of it it called the "White French", which flourishes in the Delta garden.

But this is not alone a kitchen garden, I planted there 125 imported tulip bulbs and from them harvested 700 new bulbs. These planted again gave a great glory of bloom that far excelled the beauty of the imported. It is the same peat soil as Holland. Why not raise our own Dutch bulbs? There also carnations seem to have found a perfect home, and sweetpeas are luxuriant from spring till winter.

I planted also fruit trees, peach, almond, cherry, apricot, Red Hungarian plum, Bartlett pear, fig and Japanese persimmon, the fruit of the gods. Peach trees set out in February 1912, the size of my thumb, are now the size of my arm, bloomed in less than a year and have fruit on them. There also are sloe trees, from my old home in Iowa, probably the only ones in California. Loganberries complete the list of fruits, and cactus dahlias that of flowers.

Weeds led to soil study and to a degree of respect for them, for they have as much to tell the tiller of the soil as the Rosetta stone told to Champollion. When the strawberries were ripe I found more nature study in my garden, for the birds of the air descended, and I had for neighbors the stately blue heron, and the century living crow, the mud hen that walks in the water, the hawk, fish eagle and gull, the shag and shite poke, the black bird that divided sweet corn with me, but they took no toll from my fruit. Nor did the quail, meadow lark and yellow hammer, nor the owls. The hedge sparrow and wild canary sang to me without pay, but the rascally little red headed linnet gorged him on my strawberries and had to be screened against.

When the melons ripened a night marauder found them. It was a coon, and he was kept away by hanging a lighted lantern amongst the vines. In further faunal study I found that in the Delta we have the beaver, otter and mink, and that trappers get many pelts.

Some things in our nomenclature should be changed. In the pioneer times potatoes raised in the Delta, were over-irrigated and were soggy. They were quoted in the market reports as "river potatoes", inferior in quality and price. Then came Mr. Shima, the great Japanese farmer and potato expert, by the moderate use of water producing a dry

and mealy potato. But they are still quoted as river potatoes, and bring an inferior price. They should be quoted as "Delta potatoes".

The abundant system of by-passes for water in the Delta should be renamed. These by-passes are called "sloughs" and we have Black, Whiskey, Connection, Steamboat, Georgiana, Potato, Three Mile, Seven Mile, Sand Mound, Sheep, Dutch, Taylor, Piper, Washington and other sloughs. In the Mississippi Delta these by-passes are called "Bayous", and the Teche, La Fourche and other bayou sections in Louisiana are celebrated for their products.

A slough in the prairie States, is a muddy and mirey sub-water way. The so-called sloughs of our Delta are deep water ways, navigable for the largest river steamers.

It is interesting that a Delta garden leads to a study of botany, ornithology, zoology, geography and hydrography. But nowhere is gardening, or indeed, life itself, more interesting than on the Delta of California.

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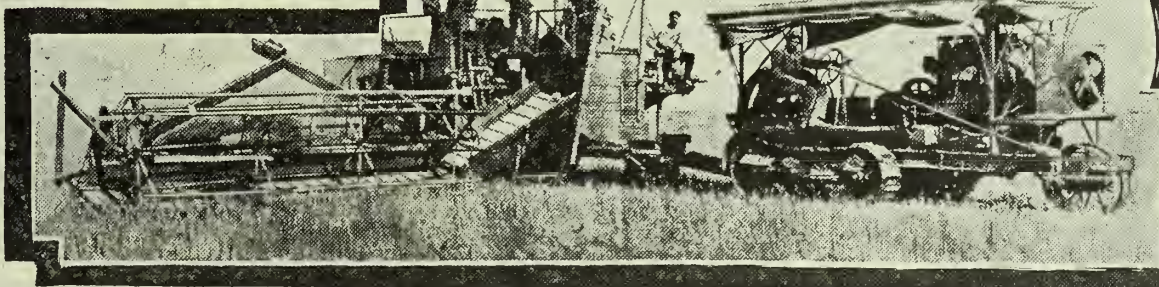
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They are in every up-to-date vineyard.

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In large or small quantities, 40 species to select from. Write for free pamphlet, "Eucalyptus Culture." It tells you how to sow the seed, raise the plants and plant out in the field. Also describes all the leading kinds, gives their uses, etc. Trial packets 15c each, 4 for 50c. Write for prices in quantity.

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Chemical and Bacteriological Analyses, Soils, Waters, Feeds, Dairy Products.

Improved Orchard Cultivation.

[Written for the PACIFIC RURAL PRESS by
R. E. HODGES, San Jose.]

"Go to any of the eleven fruit houses in Newcastle and ask them about the quality and size of the fruit I ship. They will tell you it is in the highest class," said C. V. Freed, when I marveled at his peculiar method of cultivation. "I get as much fruit as anybody, I get it every year; my trees, as you see, are vigorous, and for that reason are not so susceptible to insects, diseases, and unfavorable weather. The fruit is large and well colored, I get the best prices going."

Mr. Freed operates a large old fruit ranch in the hills near Newcastle on the western slope of the Sierras. If anything in the world, aside from matrimony, were calculated to make life full of the pure joy of living, it would be to raise fruit among those beautiful hills, from which on one side we could see the snowy Sierras, while in the other direction, through breaks in the sky-line, we caught glimpses of that great level empire called the Sacramento valley.

For many years Mr. Freed was horticultural commissioner for Placer country. On his trips of inspection he took notes on the conditions of soil, cultivation and other things that might influence the crops; and later noted the results of those conditions.

From these careful observations, he worked out a philosophy of cultivation unique in conception and highly satisfactory in results. The peculiarity of it lies in that he seeds to clover the space between two rows of trees in the spring and lets it grow all of that season and the next. The adjoining spaces on each side are plowed and cultivated as usual, while the spaces next to them are seeded to clover. Two furrows are turned on the grassy side of each row for irrigation. Next season the clover is plowed under, cultivated and seeded again.

The advantages of this system are numerous. The clover root nodules enrich the soil. When the clover tops are plowed under in the winter following the second season's growth, within eight days they have turned to humus mold.

The roots make the soil friable. Mr. Freed used to cultivate thoroughly, but the soil never would fall apart loosely. It was always cloddy under the surface, and when he turned a little irrigation water into the upper end of a row, a little always came clear through.

Now the roots and tops of the clover have made the soil so fine that it falls apart in plowing and absorbs and holds a large amount of moisture for the use of the trees.

Furthermore, under the old system, Mr.

Freed often woke up in the morning to find some of his dikes overflowed and ditches washed straight down the hill-sides. This had wasted much water and soil besides the labor required to fill the washouts and do the irrigation over. Now he sleeps easy, for if the ditches overflow, the water seeps gently through the grassy spaces and no ditches are washed out down the hill.

The alternating grassy spaces form a solid roadbed for the sprayer in the winter and spring, for the wagon to haul away pruned-off wood and for hauling the fruit from the orchard.

But these advantages are not all. Mr. Freed reasons thus: "The subsoil notoriously lacks plant food until it is thoroughly worked and mixed with humus, air, sunshine, and rain. The plant food used by the tree is largely drawn from the top soil. Therefore, the ground needs periodical exposure to the elements by plowing. On the other hand, however much food there is in the top soil, it is useful only so far as there are rootlets to take it up. If you cut off the rootlets every spring with a plow, you reduce the ability of the tree to use it until new roots have been developed in the top soil at a considerable loss of time and energy. Now, if on one side of the tree you permit last year's roots to confine their work for another season, you may plow the ground on the other side, cutting off the rootlets as a necessary loss.

Thus you have the advantage of stirring the ground for half of the root system of each tree every season, yet leaving the roots on the other half to do their work another year. All the time you are growing clover to enrich the soil and put it into better condition for irrigation. You are getting the benefits of cultivation as well as having a system of solid strips on which to drive your wagons. But the finest thing about it is the continued vigor of the trees, and the high class fruit they bear.

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We learn the worth of NaNO_3 ,

As well as Tankage—Blood—Bones of all sorts—

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And miracles that spring from Stassfurt Salts.

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And Humus—that preserves the soil's moisture,

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As that last-named commodity—so low! To this most farmers rush on moneyed wings,

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They say, "The Fertilizer Company

Will have to wait till we sell next year's crop,"

And then the R. R. say they want their fee,

And on us for Ten Dollars' Freight they drop.

And so each year repeats the tale again; But still, 'tis satisfactory to see The Fertilizer Company doth gain

In spite of each year's long-deferred fee.

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The Expan Protector Co.
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An idea of an orange twig when laden with the Black Scale.

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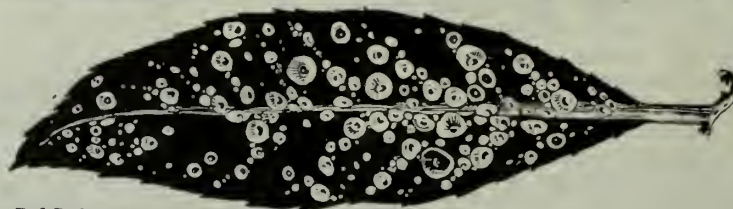
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Causes of Poverty

To the Editor: Owing to the sudden linguistic eruption upon the subject of Workmen's Insurance, occupying your columns for a short time. I thought best to wait for a subsidence of the outburst before continuing on my subject of co-operative marketing of farm product.

I am not fully satisfied with the discussion on accident insurance, believing that the subject has not been fully cleared up, but at present I will discuss only far enough to clear up that bearing on the subject I am considering.

Poverty, according to Webster is "Any deficiency of resources that are needed or desired." People producing wealth certainly desire it or they wouldn't make the effort to produce it. Any part taken, under any pretext, without adequate return is a cause of poverty, to that extent. It makes no difference whether or not it causes the victim any actual hardship. To be a cause of poverty, all that is essential is that a non-producer absorb the product of a producer without return.

But three factors are involved in the production of the "resources needed or desired" by man. They are labor, which is the personal effort of the individual, material, being those things furnished by nature; and capital, being that part of "resources that are needed or desired," which are kept back to assist the laborer in lessening the amount of effort required to produce more wealth.

The factors necessary to the production of wealth or resource are capable of private ownership, and such ownership is capable of transference from one individual to another. It so happens, frequently, that one person owns the labor, another person owns the material furnished by nature and a third, the things needed by the laborer to aid in producing more wealth.

Now comes a time for bargaining. The owner of raw material, that is the natural resources, can dictate to the other two, so long as his supplies hold out, but his supplies, unless he himself works, depend upon the other two. Any part he gains, which relieves him of the necessity of producing resources "needed or

desired" for his own use is a cause of poverty. The amount so received is called rent, and he at once capitalizes his privilege for private ownership of something nobody produced is only a privilege granted by society, by estimating its value by the number of dollars it will pay interest on at the ordinary rates of interest.

The capitalist draws his share of the "needed or desired," by reason of the ownership of those things used to aid the laborer in producing wealth with less effort, and he calls his share either interest or dividends, depending on whether he gets it from a corporation or from loaning.

But it matters not, how it comes, or what it is called, it is a cause of poverty if the producer gets nothing in place of it that he "needs or deserves."

Prior to 1862 the owner of the labor was not always the same person as the laborer, and the owner capitalized the ownership of the labor in exactly the way as the land owner now capitalizes his ownership of natural resource.

The effort to compensate injured employees is a point when the owners of the three factors to production are now bargaining over the division of the product, and any amount gained or lost to the owners of so called capital will be simply reflected in terms of interest.

W. O. RETHERFORD.

Oakley, Cal.

THE VALUE OF DREAMS.

To the Editor: Dreamers are all right if they materialize their dreams into something tangible. Every great progress marked in the world's history was born in the dreams of some great thinker, who wrought his dream into concrete form. Dreams are but the visions of great souls building ships and railroads and skyscrapers and threshing machines and all things going into the advancement of humanity.

The farmer boy following his sweating horse in the furrow of mellow up-turned earth dreams and dreams until life's horizon lifts and broadens for him. No available statistics are at hand, but very many of the men who mark the outposts of the world's onward progress dreamed in the furrow. Something about the contact with Mother Earth, the intimate association with her moods and her brooding heart begets stamina, character, stability and deep-rooted purposefulness.

So when some foppish young city chap with tailored suit, polished shoes and manicured nails sneers at "the country bumpkin" don't let it disturb you, for your dreams made possible his bed of ease and wrought the city, the soft-cushioned automobiles and the comforts he enjoys. Moreover, you are worth a dozen of him in doing life's work, for your bent back, your wrinkled and unkempt clothes, your horny hands and tanned skin result from doing the hard, the humble, but the absolutely necessary work to keep this old world turning in its orbit.

But the dreamer drone who nods in the sun and lets the world rush by him has no place in the scheme of things. We have had hundreds of that sort in the Farmers' Union, who sit down and dream that everything will come to him without an effort on his part. Then he wakes up and quits because, as some one has expressed it, "they ain't doing airthing." Dream, but turn your dream into something.

C. S. BARRETT.

President Farmers' Educational and Co-operative Union of America.

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it is being starved to death for want of nourishment. The soil around its roots is worn out—it needs a fertilizer.

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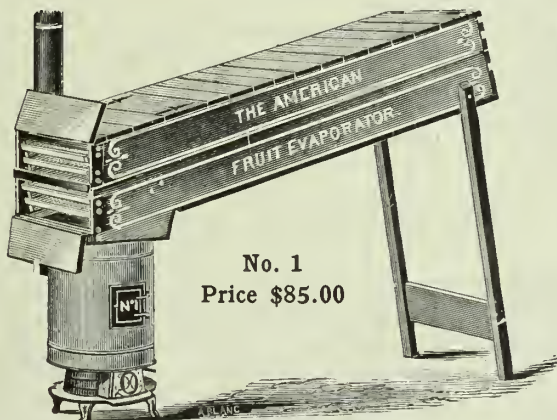


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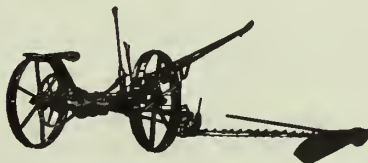
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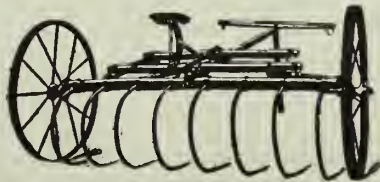
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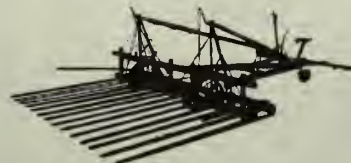
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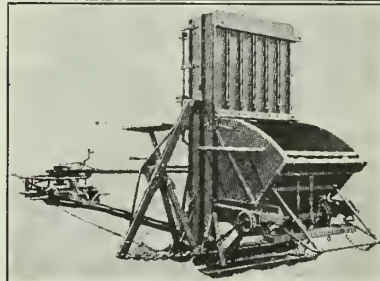
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Good for Sour or Stiff Soil—Alfalfa, cover crops, beans, peas and crops in general.
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Our soil grows good roots and a hardy tree, while our foot-hill district is free from every disease or pest.

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MORRIS & SNOW SEED CO.,
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AGRICULTURAL REVIEW.

With the Fruit Men.

The semi-annual convention of California Fruit Growers will be held at San Jose from July 22 to 24.

Citrus tree planting in Tulare county will not be as heavy this season as it has been for several just past.

A correspondent from Sonoma county, after traveling over a good portion of it, sends us the following crop estimate of that section. Prunes, 60% of a normal crop; cherries, about 10% of a full crop, caused by frost and cold April rains; apricots, practically no crop at all; apples, 50% of a full crop, damaged by April frost; strawberries, hurt by frost; peaches, from 50 to 75% of a normal yield. Hay and grain promise to be exceptionally heavy.

Prospects seem to be good for financial assistance to open and run the fine new cannery at Tulare this season.

W. E. Sprott, of the Tulare county Citrus Fruit Exchange, states that the chances for a big orange crop in the Porterville section for next season are now better than ever before.

Land Development.

Residents of the Paradise district in Butte county are talking of organizing an irrigation district to get the water from the west branch of the Feather river.

A canal 80 feet wide, 12 miles long, and deep enough to float large freight, has been completed by the Solano Irrigation Farms Co. The canal takes water from the Sacramento river and by means of big pumps will be lifted into great reservoirs for irrigation.

At Fairmead, Merced county, many acres are being sowed to alfalfa. Hundreds of acres are also being checked preparatory to planting. What was a year ago a great grain field is rapidly being changed to alfalfa fields and orchards.

Grain sowing is just being completed in Modoc county, the spring being later than usual. Cattle in that district had to be fed later than usual, but now the pastures are in fine shape with plenty of snow in the mountains to insure plenty of good feed till fall.

The 700-acre ranch located near Cottonwood, Shasta county, was sold last week to Tulare county men.

Another big ranch in Shasta county was sold last week, which will be cut up and colonized. The Ehrman ranch of 1682 acres, located near the mouth of John Creek valley, was sold to L. W. Nelson, of Durham, for about \$50,000.

The famous J. G. Fair ranch of 10,300 acres, lying along the river 28 miles north of Sacramento, is being subdivided for colonization purposes.

The survey of the 20,000 acres of land to comprise a new irrigation district east of the Oakdale irrigation scheme and north of the Stanislaus river, is to be completed in a few days. Some of the land to be covered in this new district is said to be fine citrus and olive land.

A 13,000-acre ranch on the Millville plains east of Redding was sold last week by Sard Wilcox to Red Bluff parties. The land is to be brought under irrigation and colonized.

Bad Frosts in Europe.

Bad frosts and cold weather generally are reported from Europe to an extent which will cut down the crop badly this year. The following from a consular report is but typical of weather from many parts of Europe:

"The entire fruit crop in the Marseille district has been greatly damaged by

severe frosts which occurred on April 13 and 14. All the hills of Provence are covered with snow, which is most unusual at this time of the year. It is reported that the apricot, cherry, and almond crops have been practically destroyed. Considerable injury has also been done to the early vegetable crops, which are among the most important sources of wealth in this region. The vineyards have equally suffered to a large extent, and the growers will sustain enormous losses."

General Agriculture.

Large additions to the acreage planted to alfalfa will be made this season in the district around Lake Tulare. Some of the land seeded will need to be diked against high water in future years.

Alfalfa as well as grain promises big crops in the Chico district this season.

The Turlock Tribune states that good crops of barley and oats will be harvested in the Montpelier section of Stanislaus county this season.

Ten different varieties of alfalfa brought from Italy are being tested out this season under favorable circumstances on the big Spalding ranch near Norman, Glenn county.

The first California Land Show held at San Francisco is scheduled for October 11th to 25th. At this time will also be held the great Portola festival. The Land Show will be housed in a big tent at the corner of Eighth and Market streets. Besides many private exhibits, there will be special horticultural and county displays.

A note from H. Morris, of Hat Creek, Shasta county, states that the season there has been backward, that late showers have helped pastures very much. Little hay is left in that section, as many cattle were fed there the past winter. Stockmen had a very profitable year, the season being open. The creamery at that point is doing a fine business. Blight is worse than usual in the apple orchards.

Bianth & Son have completed a 6,000-foot irrigating flume to their lands near Broderick. Water is pumped from the Sacramento river to their large alfalfa fields and six cuttings will be made this season. An alfalfa field with plenty of water is a valuable asset this season.

Live Stock and Dairy.

Eight hundred head of spring lambs were shipped from Corning to San Francisco, May 10th. This was an unusually large shipment, and the lambs brought \$2.25 per head.

There was landed in San Francisco from Australia, last week, 400,000 pounds of frozen beef. If this venture proves successful, other shipments are to follow.

Several stockmen from Sutter county have recently been buying large numbers of beef cattle in the San Joaquin valley and shipping them to the Sacramento valley. Feed is plentiful in the northern part and scarce in the southern half of the State.

The Tulare Co-operative Poultry Association is gaining in membership steadily, it now having 68 members. Last week the association shipped several lots of eggs and poultry to Los Angeles for which it paid 19½ cents per dozen for the eggs.

Dairymen of Kings county were paid \$138,000 for butter-fat delivered to the nine creameries in that county during April.

Trainloads of cattle are being shipped from San Benito county to points in northern California and to Nevada, owing to scarcity of feed at home.

A carload of fine dairy cows was received last week by Bozzini & Scattini, dairymen of Gonzales. The milk from the cows will all go to the Alpine Evaporated Cream Co. at that place.

The official Ayrshire Record, No. 19, states that the Ayrshire cow, Lily of Willowmoor, owned by J. W. Clise, has made a record of 22,106 pounds of milk, making 1,046 pounds of butter, during the past year.

At the Portland Union Stock Yards last week all existing Coast records were broken on prices paid for beef. On Monday five carloads of corn-fed steers were sold in open market at \$9 per hundred. Not only did these steers sell for big money, but prime-fed bullocks brought \$8.50 to \$8.70; cows, \$7.65; ewes, \$6.25. Hogs, however, sold lower than the week previous, the best price being \$8.65.

May 15th was payday at the Ferndale creameries. Prices for the past month for butter-fat were from 30¼ to 30½ cents per pound.

Charles Odell, of Wood Colony, Stanislaus county, last week bought the famous Cole herd of 12 Jersey cows, and has added them to his fine dairy stock.

Hogs are being shipped to the market from San Jacinto in large numbers, and the owners are getting fancy prices. In some instances nearly 10 cents, so it is stated.

Payments for butter-fat to Tulare county dairymen fell off considerably the past month. The average prices ran from 29½ to 32 cents per pound.

KELP PROMISING POTASH SOURCE.

The U. S. Department of Agriculture has been working with kelp from the California coast as fertilizer, especially as a source of potash, and the results indicate that this material will prove to have great value. Along with these, experiments were conducted with alunite, a mineral containing potash. The potash in this was made more available by burning.

The report on the work says in part: Cameron and his associates are making

a thorough investigation of the kelps of the Pacific coast, and conclude that they are at present the most promising source of potash in the United States. That kelps have value as a fertilizer has long been known. Seaweed has been used locally as a fertilizer on the Pacific coast, in New England, and in European countries. It is stated that the giant kelps of the Pacific coast are essentially different from the Atlantic kelps and those of Japan in that the potash content is higher and the iodine content lower. The dry kelps from the Pacific coast contain 30% or more potassium chloride as an average of a large number of samples.

The effect of the kelp on soil was tested. The kelp used was dry and powdered. It contained 19.8% of potash. It was applied to soil in amounts sufficient to add 25, 50, 100, 200 and 500 pounds of potash per acre. This experiment was carried on at the same time as the experiments with alunite, and the fertilizing action of the two substances was compared with potassium sulphate and potassium chloride.

Each of the potash fertilizers produced an increased growth over the untreated soil. The kelp produced a considerable increase in growth. The increase varied with the different amounts, from 17 to 43%. The average increase over the untreated soil was 31%. The increased growth was about the same as that produced by potassium chloride, and was slightly less than that resulting from the use of potassium sulphate. It should be here noted that the potash in the kelp is in the form of the chloride.

In a second experiment kelp again produced considerable increase in growth. The effectiveness in producing plant growth was practically the same as that of potassium sulphate and potassium chloride. Kelp gave as an average 23% increase in growth, potassium sulphate 25%, and potassium chloride 22% increase. In addition to the amount of potash added to the soil by the kelp, it contains a small amount of nitrogen and phosphorus, which should be effective in

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FOR ONE HUNDRED DOLLARS per month, advertiser will work as foreman or superintendent; is thorough in general farming, irrigation, vine and deciduous fruit growing; experienced in working all kinds of labor. Address Box 21, Pacific Rural Press.

LAND FOR SALE.

FOR SALE—Lovely home, 20 acres, cheap for cash. ROBERT CORBETT, Willits, Cal.

FOR SALE—20 acres; 10 acres full-bearing fruit trees; 10 grain. Implements, live stock, furnished house, everything goes. Price, \$5,500. For particulars address owner. No agents wanted. W. TIEK, R. 2, Box 15, Vacaville, Cal.

Sebastopol apple and berry lands, Sonoma county. Send for booklet telling advantages of investment in this good productive country where no irrigation is required. John F. Byxbee, Palto Alto, Cal.

CALIFORNIA LAND—Send for catalog. Properties in all counties. Valuable, reliable information. C. M. WOOSTER CO., Phelan Bldg., San Francisco.

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AGENTS WANTED.

the soil. From these two experiments it seems that the dried kelp and ignited alunite are about as effective potash fertilizers as the salts, potassium sulphate and potassium chloride.

STATUS OF THE POTATO MOTH.

The potato tuber moth, known scientifically as *Phthorimaea operculella*, for several years has been the most serious pest of the potato in this State and has been spreading until it is found in parts of Washington, Texas, Colorado and North Dakota. It is found likewise in several other parts of the world. The U. S. Department of Agriculture is now out with a mild hint that a quarantine on potatoes might be advisable to prevent its spread. What is more to the point, it is stated that eradication is quite feasible where it has not spread over too much territory, and in all cases good methods of control should be practiced.

The circular referred to says this on the subject: "An expert of the Bureau of Entomology has estimated in the fall of 1912 a loss by two growers near El Monte, California, of \$90,000 and \$70,000, respectively, on potatoes that year. It would be almost impossible to say how many other farms would show a proportionate loss.

"The remedies which can be used are: first, an examination to determine the presence of the pest; and, second, the destruction of all of the infested potatoes, potato plants, and all related weeds, such as bull nettles, horse nettles, volunteer potato plants, and other weeds of that kind. A destruction of these weeds would eliminate localities for breeding and hibernation of the potato tuber moth. Crop rotation is desirable on large farms. Among the best crops suitable for this purpose are the leguminous crops, such as beans, peas, cowpeas, alfalfa and clover. The insects do no injury to them, and these crops act as soil restorers. Sugar beets, celery, and crucifers, such as cabbage, are also good as alternates, and grains can be used for a year or two over an infested region with good effect. It might have the ultimate effect of starving the insect out if destruction of the insect from the territory which has been mentioned could be enforced by law, through co-operation with Federal and State boards of horticulture."

ANTISEPTICS IN TREE SURGERY.

To the Editor: In the removal of limbs from the trunk or main branches of a tree, or in dressing injuries, little or no attention is ever paid to sterilizing the wound before it is painted over. In animal surgery antiseptics are generally considered of much value. I have found it so in tree surgery also, both in grafting and in dressing sawed off limbs. The solution I use is a 1-2000 solution of bichloride of mercury, thoroughly sponging the wound and leaving to dry before painting over. A sawed off limb seal always turns black, and upon cutting into the wood tissue it will be found that the wood is more or less dead and dissolved to a considerable depth. A similar surface treated with the above solution will remain bright and clean, and the wood tissue does not dissolve and die. This is easily proven by experiment. I am not versed in chemistry, but I have been told that the action of bichloride of mercury on the living wood tissue is to coagulate the albumen and seal the entrance to all germs, spores or ferments. A coat of paint will not do this, but if applied after the treatment it insures permanency and makes a perfect covering when the sap is up is a more favorable time to remove a limb than when the sap is down, as there will be no die-

back about the wound and it will have better circulation of sap and heal over more readily.—Albert F. Etter.

PEDIGREED FRUIT TREES.

Our readers will remember the account given last year by Mr. Shamel of the United States Department of Agriculture of the bud variation in bud types in citrus trees, the necessity and value of keeping tree records, and the necessity of making a careful selection of bud wood—of knowing where the bud wood comes from and the type and productivity of the parent tree. This proposition naturally applies with exactly the same force to deciduous as to citrus trees.

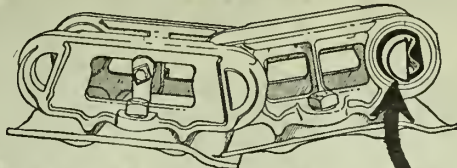
The Rural New Yorker has been discussing this subject recently, and the following summary of the part of the prospective grower in pedigreed fruit growing is of importance at this time, as soon bud wood will have to be selected. It is by W. P. Hedrick of the Geneva Experiment Station.

The fact of drone trees must be apparent to everyone who has had to do with orcharding. I am told that there are many more drones in citrus orchards than in plantations of deciduous trees. I do not see that Mr. Shamel has yet proved, nor has anyone else, that drones can be prevented by breeding. Until we have such proof, nurserymen ought not to be encouraged to lead fruit-growers to think that such is the case. I am in a nursery center, and I think I know nearly every phase of the nursery business so far as it applies to the fruits of this climate. If fruit-growers or nurserymen are to breed pedigreed trees, then the propagation of trees must be absolutely changed to the following particulars:

1. The fruit-grower must furnish the buds or scions to the nurseryman. The latter cannot select to suit the notions of this, that, or the other fruit-grower.

2. The selected buds or scions must be propagated on their own roots as cuttings. It will not do to bud or graft them on variable stocks raised from seed taken from cider mills and canning factories, as most seeds now are. The roots as well as the tops must be passed through the sieve of selection.

3. Tree-growing in the nursery must become a local business where the fruit-grower can see that his buds or scions are made use of by the nurseryman.



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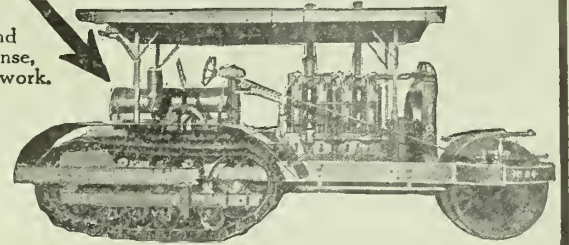
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4. Fruit-growers must expect to pay vastly higher prices for their trees than they now do, since the selection advocated is a difficult and time-taking task.

5. The fruit-grower must be trained to select his buds and scions—a difficult task, since trees good in one quality are nearly always deficient in others, so that selecting for one quality will not do.

These are but a few of the practical difficulties in propagating stock from selected trees, even if it prove to be true, which I greatly doubt, that acquired characters are transmitted. During the past few years I have given this matter a very great deal of attention, have corresponded with practically all of our horticulturists, have written to a good many men abroad, have followed the recent teachings of Mendel and DeVries, have studied carefully the several thousands of varieties of fruits on our own plantations and the nursery practices in western New York, and have come to be pretty certain of the position I take in the matter of pedigreed stock.

THE CITRUS TARIFF

To California Citrus Growers:

Congress has placed in jeopardy your aggregate investment of more than \$200,000,000.00.

The present question is how to conserve this investment without loss. Where there's a will, there's a way. I want every citrus grower and all others interested, to communicate with me at once.

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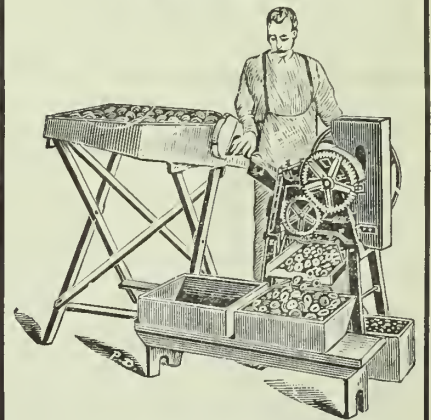
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Field Notes.

[Written for the PACIFIC RURAL PRESS by E. A. HOWES, of the University of Nevada.]

Of late, stockmen have been giving more and more attention to the claim that it pays to add something to the ration of hay in finishing animals for market; the claim that the profit will lie in a quicker finish of better quality. Two classes of feed immediately suggest themselves, grain or roots. While it might be one step in advance to say grain and roots, we feel sure that for the present at least we should feel satisfied if we can induce the meat producer to use either. The purpose of this article is to give a few hints that may be of use or interest to the rancher who may contemplate growing field roots.

The growing of field roots is long past the experimental stage; it may be comparatively new in Nevada, but in the countries where beef and mutton growing is almost as old as the race, we are not able ascertain when the earliest turnip was grown. Lowland Scotchmen, recognized as just about the world's best exponents of mixed farming with stock as the ultimate product, would about as soon renounce Bobbie Burns or the Shorter Catechism, as to abandon the growing of Swede turnips. In the neighborhood of Guelph, Canada, is a settlement known as the Paisely Block, a portion of Lowland Scotland transplanted to Canada, and there it was the privilege of the writer to study methods in beef production. These people feed alfalfa, clover and timothy up to a certain stage in the game, then add roots to the ration and finish up the last two weeks with the addition of some kind of grain. No person would ever accuse these people of being careless in the matter of profit and loss; on the contrary, they are apt to know just what has happened to the last penny in the carrying out of their scheme of meat production. It is quite true that conditions there differ materially from conditions in Nevada, but there are two bets we must not overlook: Nevada can grow better field roots than it is possible to produce in most of these older stock countries, and at the same time no stockman of Nevada or elsewhere can afford to ignore results obtained in regions that produce the best beef and mutton in the world.

By field roots we mean different varieties and strains of field mangels, carrots, and turnips. The seed is sown in the spring and the roots are pulled in the fall as late as the climate will allow. Being biennials, that is to say being intended by nature to reproduce on alternate years, the roots are simply storehouses of food material, intended for use the next season in the production of seed, but fated to be used by man as food for his animals. When man wishes to secure seed to maintain the supply, he plants the roots the second spring and allows them to "go to seed." By selection of these roots for this purpose and by careful grading of the seed, the passing of years has resulted in the gradual improvement of the plants, a development in the direction of maximum storage of food material in the root. By crossing varieties and strains new types have been developed, but not so many as one might surmise from perusing a farm seed catalogue.

Multiplication of Names.—The would-be grower of roots, when he picks up and studies a seed catalogue is surprised and somewhat confused to find the great array of pretentious names with which he is confronted. We can assure him, however, that the frills tacked to the name of the mangel or turnip do not, as a rule, mean anything more than seed house competition. For instance, there is the well known type of mangel known as the "Long Red". How could you expect any enterprising seedsman to be satisfied with such a commonplace name, particularly when his rival is selling the same thing probably procured from the same house in Germany? Therefore, he styles his seed as that of the Mammoth Long Red, and the next year his rival goes farther and sells the Prize Mammoth Long Red, until some day we need not be surprised to hear of some firm handling a Mammoth, Improved, Prize, Unrivaled, Selected, Perfection Long Red, and the dealers themselves will see the joke. There is no harm in this funny competition so long as one knows the dealer from whom he buys, the danger lies

not in name, but in the grade of seed sold. At the same time there are certain well defined types of roots and the buyer should know about them.

Types.—In mangels the standard types are Long Red (or Yellow) Intermediate, Tankard and Globe. The Long Red needs little explanation; it has been the "old reliable" for years, and its name explains its shape. Intermediate is a term applied to a root neither Long nor Globe, but a sort of half-long, indeed, the latter term is sometimes used. The Tankard mangel has many admirers, is a large yielder, and, being but shallow rooted, is easily harvested. It is half long, thick, with parallel sides and is a selection from the well known Eckendorfer type—the sides being perfectly straight instead of constructed as in the case of the parent type. The Globe mangel, as its name implies, approaches the spherical form. The Long Red and the Tankard are the biggest yielders as a rule; the Long Red being best suited to regions subject to drouth, while in other places the Tankard is rapidly becoming a favorite owing to ease in handling. Besides all these, there is the new sugar mangel (not sugar beet), said to be the result of a cross between the field mangel and the commercial sugar beet. This is intermediate in shape, rose in color, large in size, and said to be of high feeding value.

Carrots.—Field Carrots are represented by about the same number of types as mangels. There is the very short type known as Ox-heart, a cone about as wide as it is long. Next comes the popular Short Carrot, popular because it is of fair size and may claim ease in handling, requiring little thinning, and one may use the plough to lift the entire crop. There is an intermediate carrot which is just a large Short Carrot. Then there is the Long type, chiefly represented by the Belgian, a large, warty, crisp root. The extreme in Long Carrots is furnished by the Long Orange or Red Surrey, not much thicker than a cigar but of almost indefinite length.

In turnips we must consider two classes. In the Swedes or rutabagas there is little variation in shape, although there may be "bronze" tops or "purple" tops. The smooth, leathery, blue-green leaves, the narrow neck, the almost globular, yellow-fleshed root is fairly characteristic of the Swede throughout; although some varieties are larger than others, there is perhaps less risk in buying in this class than in any other class of field roots. There is, in the second place, what is commercially known as the Field Turnip, of the large white flesh kind, and this lays claim to more than one type. There is the flat-round type, such as the Norfolk, and there is the large globular shape. The extreme type is found in the Cow-horn shape, which is sometimes bent almost like the letter U. All these turnips have large rough leaves of a deep green, covered with prickly hairs.

Trueness to Type.—While the fact that the field root is decorated by a super-abundance of ornamental epithets, may not be a serious consideration, it is of importance that the buyer should get the type he desires. Again, taking the mangel for illustration, there are certain soils, such as dry-farm areas, where it would be just about useless to attempt to handle anything but the Long Red, where a Tankard could only exist at the expense of abnormal development. On the other hand we all know of fields where the Long Red grows so deeply in the soil that it is extricated only after much labor and repression of temper, accompanied by expressed wishes that seed of something shorter had been sown. Most types have a favorable environment somewhere, and it is important that the seed should produce as labeled.

It is a fact, however, that a fair percentage of the field root seed sold does not produce true to type. We hear many plausible explanations of this, but the fact remains that every year certain dealers are able to sell genuine seed. The writer spent two seasons in a study of this class of seed sold in Canada. In 1912 a comprehensive field test of 281 samples of field root seeds was made at Ottawa. These samples were purchased from retail dealers during the spring season, warning having been sent wholesalers that such a test was about to be made. Of course, a very large

percentage of the seed was genuine, although quality was sometimes lacking. The striking feature of the test lay in the fact that all the untrue seed came from two or three firms and these also furnished us with five samples that practically refused to germinate. For this reason, we claim that the main thing is to know the seller.

It should be added, that in the matter of quality, European seed growers may be to blame. In five cases seed of certain varieties was purchased direct from Europe and in every case it was better seed than that of the same varieties imported by wholesalers; the plants were stronger, besides being uniform. Canada ranks fairly high as a grower of field roots, and what is true there is probably true in the United States.

Culture.—Conditions may vary methods of culture, but a general outline may be given. Rows should be about thirty inches apart and for mangels and turnips the plants should be at least one foot apart in the row; carrots, eight inches. Sow plenty of seed; cut out with a hoe and thin to one plant in a place. Cultivate as often as practicable; if irrigation is practised, cultivate after each irrigation when land is workable. Mangels must be harvested and pitted before frosts; carrots will stand more cold, and Swedes will stand a great deal. Field turnips mature early and are sown later than other roots. Cut off tops immediately after pulling, and do not cut too close to crown. If you know a reliable local dealer he can tell you which of the many varieties best suits your needs.

FODDER CROPS AND BEANS.

To the Editor: In this season of short rains, a shortage of feed for cattle, horses and animals will be most felt; and not just now when there is a little grass or short grain left; but later on when this is all eaten up. It behooves the farmer wherever possible to grow some form of stock feed wherever possible. A little good irrigation of any field just now will grow it.

If only a few acres can be irrigated, so as to saturate the ground, wait a few days after irrigation and plow this irrigated ground and smooth it down. It will, if only this single irrigation is possible, grow corn—especially some quick growing yellow variety. But better than all are the various sorghums, especially Egyptian corn, which will grow with far less moisture than the ordinary sugar and field corns.

Unless an orchard is irrigated very little cropping should be done between trees, conserving all the moisture that there is for the trees—it is little enough as it is.

For chicken purposes if a single acre or so is irrigated it may yet be planted to wheat or barley and will grow very rapidly and make short but nutritive green feed.

Beans may yet be planted if the ground is in good condition. All through May, beans are planted in different parts of the State, especially the small white, Lady Washington, large whites, limas and pink and bayo varieties.

Wherever possible the ground this year for beans should be irrigated before planting, then plowed, smoothed down and planted, even if it gets to be a little late. The exception is on moist seepage land which if previously well worked will carry its moisture.

There is this thing to be noted by all bean planters, as the season is short of moisture it will not carry as many plants per acre as a normal season, consequently the planting should be much lighter. We should advocate about one-half the amount of seed usually planted. It is better to have one good plant than two poor ones.

Beans, it ought to be known, make a fair fodder after being threshed. This bean straw will be a good roughage for the stock—it will save at least half the hay or feed bill. Not too much of it at a time should be given however, but the feed can be gradually increased.

The small white and the Lady Washington bean make the best bean straw, unless it be the bayo, which is not however grown, except south of Santa Barbara. The colored bean pods however, are worth stacking for straw. Where fields can be irrigated and the land adaptable it will pay to put in beans yet, both for the value of the bean crop and the fodder it will yield.

L. E. BLOCHMAN.

Making Cheese From Potatoes.

[Written for the PACIFIC RURAL PRESS by
J. C. LOOMIS.]

The question of potato feeding for all kinds of livestock has been one that a good many of our California stockmen have been seeking information about the past winter while other feeds were so scarce and the price of potatoes so low that it hardly warranted the cost of digging and sacking for table use.

In past copies of the PRESS this year, articles were printed showing the value of potatoes for stock food as found in Germany, but as their experience was taken from the use of dried potatoes, and as most California ranchers would perhaps not care to go to great expense in preparing them in that way, we give below the experience of a California dairyman who used raw potatoes as feed this year with a great deal of success.

The ranch in question is that owned by Hubbard and Carmichael Bros., located about three miles from Newman, Stanislaus county. There are 400 acres in alfalfa and at the time of the potato experiment there were 288 head of cows being milked, the product being made into cheese.

Perhaps the reader can get a clearer view of the experiments if we give it as Mr. F. Kohr, the manager, gave it to us, so we quote the following:

"We have had four silos on the ranch for four years with a capacity of 250 tons each. In the past we have filled these silos with the first cutting of alfalfa as that we find makes the best cutting for ensilage and also does away with a good deal of foxtail hay feeding.

"About the latter part of December last winter our silos were getting low and also our hay and with prospects as I saw then, I concluded that I would try something new or else get out and rustle more hay. One year in the past, I had seen beef stock fed potatoes near San Jose, so I decided to buy a carload and experiment. I made a trip to Stockton and purchased a carload which cost me, laid down at Newman, \$6 per ton, but later on I did considerably better on prices, as I purchased in larger quantities.

"At the time I started to feed the potatoes I was turning out 18 flats of cheese a day, for which I was receiving \$4 apiece. As I had an ensilage cutter lying idle, I cut all the potatoes as I used them. This makes them more easy to masticate, and the cows eat them more readily.

"The first day we fed sparingly of the potatoes along with alfalfa hay in order to get the cows accustomed to them. The second day we increased some, and by the third day we were feeding 40 sacks per day to the 288 head. This was only fed once a day, the other feed being some alfalfa ensilage and hay with what dry pasture they ran on in the day time. After feeding the first three days, our output jumped from 18 flats per day to 19 flats, a gain of one flat, and by the time the 270 sacks or first carload had been fed, our product advanced to 24 flats a day.

"Seeing that we were getting good results, I went to Stockton and bought in larger quantities as high as 3000 to 4000 sacks at times, and was able in this way to cut the cost to about \$22.50 per 100 sacks including freight, cost of handling and cost of cutting.

"After we got our second shipment, I began to feed night and morning, and increased to 50 sacks for each feeding. With this increase in feed our output took another jump, going to 28 flats a day, and here I did still more experimenting for I bought a carload of dairy chops at \$22.50 per ton and added 400 pounds a day of this to the above ration. The results from this were also very good, as we found our output then to be 32 flats a day. This amount of cheese was produced right along thereafter as long as we fed the potatoes and seemed to be the limit as to production.

"When our new hay came on in April we quit feeding potatoes and fed instead freshly cut alfalfa and alfalfa hay, but our output went from 32 flats to 28 flats a day right away.

"Besides the benefit in cheese, and the saving of feed we also found the potatoes added considerable flesh to the cows, and at this time our stock is in as good if not better shape than they have been in the most favorable years in the past.

"Our only objection to the potato feeding was

due to the bloating which followed from over-feeding at times. This bloating is a good deal more serious than alfalfa bloat, due to the amount of yeast contained in the potato. This yeast seems to continue fermenting even after one sticks a cow and this reason is hard to overcome. However, with careful feeding this can be overcome.

"As to methods of handling this feed we used our ensilage car to haul them from the cutter to the manger. At first we used a five gallon pail full for three cows, but later we used a scoop shovel to each cow in stead. After putting about five pounds of alfalfa hay into the manger we put one full scoop of potatoes in on top, this making for the 288 cows about 100 sacks per day as before stated."

Taking Mr. Kohr's data and with a little figuring one finds that not only the extra cheese was obtained, but that a big saving in feed was also made. As most dairymen have no ensilage to feed in connection with alfalfa hay we are simply comparing alfalfa hay straight with potato feed and although this gives the alfalfa feeder some advantage it still leaves a large enough margin to be convincing.

First, as to the saving of feed, let us see what it would cost the ordinary hay feeder to feed 288 cows a day with hay valued at \$15 per ton and hard to get at that.

Feeding 40 pounds of hay a day at $\frac{3}{4}$ c. per lb. would cost 30c. per head per day, or for the 288 cows \$86.40.

Now with the potato ration as above stated but 10 lbs. of hay per cow per day was used, at a cost of $7\frac{1}{2}$ c. at a \$15 basis or \$21.40 for entire herd. To this was added 100 sacks of potatoes, at a cost of \$22.50, labor of cutting and handling included, and 400 lbs. of dairy chop at \$22.50 per ton, which item would cost \$4.50 per day. Totaling this up we find that the total cost of the potato ration was \$48.40. By subtracting this \$48.40 cost of potato ration from \$86.40, or cost of alfalfa hay feeding, we have as a net gain \$38 in favor of potato ration per day for the 288 cows. Quite a gain, we should say, and well worth a little experimenting, but this is not all for as we have shown the product also increased.

As stated, January 1st, 18 flats were being made daily which brought an average price of \$4 or \$72 for the total. After feeding the potatoes, dairy chop and alfalfa ration the output ran up to 32 flats, thus increasing the amount 14 flats, which at a valuation of \$4 would make \$56. Therefore, we find that in addition to the \$38 saving in feed, Mr. Kohr also increased his revenue \$56 per day, or a total net gain of \$94 daily in favor of the potato feed.

With just a little more figuring we find that the extra revenue per cow was 32c. per cow per day and here we will leave the reader to continue wondering, as we did, why potatoes have been left in the ground the past year when stock feed was so scarce.

The advantage of this experiment is that an accurate set of data was kept to know exactly the results and all the figures given are not guesses but actual realities.

SILO PRACTICES IN SONOMA COUNTY.

[Written for the PACIFIC RURAL PRESS by
J. C. LOOMIS.]

The old saying that "you don't miss the water until the well runs dry" might be applied to conditions in some localities of this State where the dairymen depend solely upon alfalfa or other irrigated crops for feed.

Judging by reports from different stock sections, this year has every indication of being a hard one on the dairymen, and a great many are seeing as never before the urgent need of some other dry weather crop to fall back upon than that usually raised.

While it is true that a great many have overcome these obstacles by the use of silos, it would seem that more information on the subject might be profitable, so we are giving the experience of one who has used ensilage for feed continuously since 1896.

John R. Denman, whose ranch is located near

Penn Grove, Sonoma county is the man we have reference to. To give the reader as wide a view of his experience as possible we will start with the building of the silo.

When Mr. Denman built his first silo they were something new in his section, so he learned most from his own experience.

His first silo was put on a concrete foundation. After the plates were put in place the 2x4's were set 12 inches on centers and at the space left for window's 2x6's were used. A course of 1x6 redwood resaw was nailed onto this, followed by building paper and then another course of resaw, but while building his last one (he now uses four) he used a little different method of nailing on his resaw, and one which saved a great deal of labor. The plan was, instead of nailing one piece of resaw clear around and then having to fit in a board at each end to make a tight fit, to start the first board at a slight angle and continue that way all around the side. In this way the resaw formed a regular cork-screw appearance and only the one end had to be fitted. This was continued clear to the top and after the building paper was put on, the second course of resaw was run just the reverse of the first course, making it overlap the cracks in the first course of resaw.

Another feature used on neighboring silos where after several years use they began to leak was to simply add another course of building paper and one of resaw which makes them as good as new. After the sides were up a roof was put on, this being necessary where so much rain falls as in that section.

Mr. Denman has a large cutter and engine which he uses for filling his own silo and also does custom work for neighboring dairymen. For this reason he has a large outfit, but states that for small dairymen the cost need not be more than \$175 for the cutter, and with a 10 or 12 horsepower engine one should be able to cut about 5 or 6 tons per hour. As a great many find the need of a gasoline engine anyway, the extra cost of machinery would not be much of a factor.

As to harvesting the corn, perhaps dairymen in that section handle it differently than in most other localities.

For two years Mr. Denman tried to cut his corn with a common corn cutter, but on his soil it choked up with dirt badly and also cut the stalk quite a ways from the ground. Now in this section the climate is naturally too cool for corn to make as large a yield as it would in the warmer valleys, so every bit left in the ground is sorely needed.

For this reason instead of using a corn cutter, men are supplied with short handled hoes which are kept sharp with a file. With this hoe a man goes down the field and cuts the stalk clear to the ground. It is then put into piles and from there loaded into wagons and hauled to the machine.

The cost of this method for 35 acres last year was 20 days work at \$2 per day or a little over \$1 per acre, this on land which produces from 7 to 10 tons of corn to the acre. By harvesting in this way and with his large cutter, Mr. Denman is able to put his ensilage into the silo for about 85c. a ton.

When asked what he considers the proper time to cut he stated that he had found it advisable to postpone the harvesting until the corn was as ripe as it could be and still pack tightly into the silo to exclude all possibility of air, that is, it should not be allowed to dry up in the field, but it can be pretty nearly ripe before cutting and still make good ensilage. He considers the practice of cutting too green a bad one, as not nearly so much nourishment is to be obtained from such ensilage and also the odor is very strong, where with riper corn the odor is very sweet and agreeable. No water is ever used in the cutting of the corn, but it is kept well tramped down on the sides, the middle naturally settling sufficient after the sides are taken care of.

While Mr. Denman fills his silo in a hurry, he considers it safe to spend two weeks if necessary in filling without any damaging effects.

As to the length of time one could keep a silo full of ensilage, Mr. Denman does not know, but he has in favorable years held them over for 3 years and found the ensilage in fine shape.

While in his locality it is not necessary, he stated, that if he were dairying in a locality where

SWINE.

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JERSEY CATTLE, DUROC JERSEY SWINE. Mossdale Farm. J. E. Thorp, Stockton, Cal.

feed is uncertain, he would keep at least one silo full on hand every year, and in that way feel sure of plenty of feed, dry weather or wet. By having two silos, one could by a very small investment keep from 100 to 200 tons of feed ahead for emergency at all times, and it would seem no better practice could be followed in a great many districts.

As to the benefits of feeding, Mr. Denman considers a ton of ensilage worth equally as much as a ton of hay, as in feeding he can get as good results from one ton of hay and one ton of ensilage as he can from two tons of hay.

This is a wild hay, and very nourishing, and usually sells for around \$10 per ton. So with that valuation it might be said that the ensilage is worth \$19 per ton.

In feeding, it is the practice on this ranch to feed about 25 pounds of ensilage and the same amount of hay, and during the more severe weather some grain, such as barley. One year 30 tons of alfalfa was fed in the place of the wild hay, but the results were not so good, due perhaps to the stock being unaccustomed to it.

In conclusion, it should be said that Mr. Denman would not be without a silo as long as he runs a dairy, and believes they are to a dairyman what an insurance policy is to a man's life.

SHYING IN HORSES.

Every rancher, no matter what he raises, is sure to have one or more horses and more than likely he is troubled some time or other by some horse that he drives shying. It is a bad habit, and anything that can be done to lessen it is worth knowing. Our readers also are interested in matters connected with the management of horses after the symposium that we have been having on halter pulling.

In regard to shying, Farm and Home (England), discusses the matter quite thoroughly, as follows:

The principal and most usual cause of the habit of shying in horses is nervous-

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ness or fear, the animal shying at some object or other because it is afraid of it, even although it can plainly see it. Habitual shyers are usually either of a highly-strung or nervous temperament. It is, of course, well known to horsemen that by far the largest proportion of shyers are mares. The habit of shying is nothing like so often met with in geldings as among mares, and entire horses are but very rarely given to shying. The reason why this is so is obvious when it is remembered that most usually the cause of shying is nervousness or fear. Mares are, as a rule, of a more excitable or nervous temperament, and more often of a timid disposition than geldings, while entire horses are usually very high couraged. Hence one does

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not find an entire shying on account of nervousness or fear, and geldings do so much less frequently than mares.

A great many—in fact, most—young horses are more or less given to shying when they are first put to work, owing to their being unfamiliar with many objects they see, and consequently afraid of them. When they are taken up to be broken in, young horses are very commonly inclined to be somewhat nervous at first, and this naturally renders them very liable to shy on the slightest provocation, but as a rule they cease the habit of shying as soon as they become accustomed to the sights of the road, and lose their greenness and nervousness. Sometimes, however, this shying at unfamiliar sights persists long after the young horse's education has been completed, and proves itself to be quite incurable; it sometimes, in fact, gradually becomes worse. Here we have the confirmed shy, which nothing will cure. The habit, aggravating—or worse—as it is, is, however, the horse's misfortune, not its fault; hence it should be kindly and patiently dealt with.

In some cases it may be possible to cure it by careful management and patience before it gets too firmly rooted, but more generally it is impossible to effect a cure when the shying persists after the horse has been thoroughly trained and becomes fully used to the road, and mostly it is in these cases "once a shy, always a shy." When once the habit of shying has become firmly established, and when due to nervousness, the chances are much against the horse ever being broken of it. It may, perhaps, be improved if the animal is in the hands of a capable and careful rider or driver, who knows how to deal with it, and takes the trouble to do so. At best, however, one must always be on the alert with such shyers.

There is no doubt about it that in a good many cases horses which shy on account of nervousness are rendered worse by improper or injudicious treatment. In fact, the habit is often established in young horses solely in consequence of gross mismanagement. It is but too common a thing for the rider or driver of a young horse to force it past an object at which it is shying by the infliction of punishment with whip or spur, and by jobbing it in the mouth. Nothing could be worse than to do this. After this wrong-headed practice has been repeated a couple of times the horse learns to remember that it is punished for shying, and thus whenever it shies it expects punishment to follow immediately, which naturally greatly increases its fears and causes it to swerve all the more wildly or to attempt to run away.

AUTOMATIC FEEDER FOR HOGS

A very good feeder for hogs, one which they will have to keep their feet out of when feeding, can be made as follows:

Make a flat-bottomed trough any desired length, 18 inches wide and 3 or 4 inches deep. Now make a V-shaped feeder, something on the order of an elongated hopper, making it 6 inches wide at the bottom and about 30 inches at the top. Make it high enough to prevent the hogs from getting into it. Set this feeder in the trough, leaving a 1 or 2-inch space between the bottom of the trough and the feeder, to allow the feed to come out. The hogs will lick the feed out with their tongues, and there being only six inches to feed in, they cannot get into the trough with their feet. It is best to set the feeder on a board floor some place out of the mud.

If necessary, feed may be kept here all the time, but when this is not desired the feed may be poured in the top and the hogs will not get as much in the way

of the owner or of each other as if they were fed in an open trough. The sides of the hopper can be made to slope according to the shape of the head of the

hogs. Short nosed hogs like the Berkshires will require a hopper with nearly vertical sides, other breeds will require a less vertical slope.

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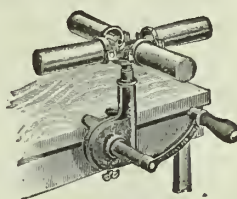
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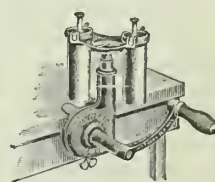
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Among the Breeders.

[Written for the PACIFIC RURAL PRESS by
J. C. LOOMIS.

The idea of keeping 9000 laying hens would of itself be considered by most persons sufficient work for one man to manage, but to pile on extra work by keeping 50 head of pure-bred Jerseys would prove a stumbling block to most anyone. Anyone doubting that this can and is being done should visit the ranch of T. B. Purvine, located about seven miles west of Petaluma. At one time Mr. Purvine was the largest poultry raiser in Sonoma county, and is still among the largest, but unlike a great many in that district, he has continued to improve his dairy cows and stayed about where he was with chickens several years ago.

Mr. Purvine has a 420-acre ranch, which is mostly small rolling hills, but also has some bottom land. These hills furnish a fine supply of green pasture for about six months during the year, which greatly aids in solving the feeding question in a section where alfalfa does not do well. This pasture of wild grasses and burr clover is depended upon from about October 1 until April 1, in connection with corn ensilage.

Mr. Purvine has had a silo for a great many years and usually plants about 15 acres of Yellow Dent corn to fill it with. He uses the same method of growing, harvesting and cutting his corn as that referred to on another page of this week's issue.

Mr. Purvine has always run a dairy on his present ranch, but up until 12 years ago had only run grade stock. At that time he decided that better stock would bring him higher yearly returns, so he bought pure-bred Jerseys. Since that time he has continually built up his herd by the use of good bulls until at present he has 50 head of as fine a lot of Jerseys as one would care to see.

While his herd has always been purely on a butter-fat basis and his herd bulls were required to carry milk-bucket results back of them, they also carried large lists of show-ring prizes, and for this reason his herd is composed of not only good producers but mighty fine lookers, and in this respect Mr. Purvine seems to have struck the keynote of successful breeding, for when one purchases a registered animal he likes to have a good looker as well as a producer. While no official testing has been done in the past a pretty accurate test has always been kept for his own information as to the ones to weed out, so it is known that some of the herd have made as high as 600 pounds of fat in a year, and in the future Mr. Purvine expects to do some official work.

The reason this herd has never been shown at the Fair is due to the hard trip on the cars necessary in shipping from Petaluma, and in this way Mr. Purvine has been greatly handicapped, as he is a firm believer in stock exhibits at the Fair.

To come back to the breeding of this herd, it should be said that it was headed by Raleigh's King Imp. in Dam, Convent Lady, but after being in use for a short time he died, so Mr. Purvine bought a half-brother to him by the name of Raleigh's Fairy Boy 4th, out of Morny Cannon's Feather. Both of these bulls came from C. I. Hudson of New York, the owner of their sire, Son of Raleigh's Fairy Boy.

This was an island animal, and before being brought to this country was on the different show circuits there, where he won a great many prizes, and since being brought to this country he has been a persistent winner all through the East-

ern States. It is said that he is considered by many judges as the greatest dairy and show Jersey bull living. The bull, Raleigh's Fairy Boy 4th, now on Mr. Purvine's ranch, is a handsome young fellow and is considered a better individual than his half brother was.

Judging from the young stock on the ranch out of the first of these two bulls kept, Mr. Purvine will be greatly benefited by having this blood in his herd. Particularly does this blood stand out in a number of young bulls on the place.

Until this year the skim-milk was fed to the chickens, but from now on this by-product will be consumed by hogs.

About 200 head of Shropshire sheep are also kept.

THE DAGGS HERD OF DUROCS.

Perhaps no herd of Duroc Jersey swine is better known than that of John Daggs & Son, located near Modesto.

While Mr. Daggs has only been in the pure-bred business a few years, he has, through showing at the fairs and advertising, placed his stock where there is a continual demand for them.

There are at present about 50 head in this herd, including five brood sows and two service boars. The older of the two boars is Hoosier Lad, which was shown at the State Fair last year, while the younger one is called Modesto King No. 117719. This is a well put up animal, and when shown at the Fair this year should come out strong. Mr. Daggs stated to a RURAL PRESS representative that he expects to enter in all of the Duroc classes this year, and will no doubt receive his share of prizes as usual.

This stock is fed almost entirely on buttermilk and alfalfa, but is fed some corn part of the time.

Mr. Daggs states that he considers buttermilk one of the finest of hog feeds, also that local butchers always pay him a premium for his hogs over common stock, as they make a much superior grade of pork.

MINOR & THORNTON'S HOLSTEINS AND HEREFORDS.

It is seldom that one finds 2000 head of beef cattle and 100 head of pure-bred Holsteins on the same ranch; in fact, we believe Minor & Thornton's ranch near Kearney Park, Fresno county, is the only one of the kind in the State run on such a large scale.

This ranch contains 6000 acres, of which about 700 are sowed to alfalfa. At one time this whole ranch was run to beef stock, but as land increased in value and as a great deal of the ranch was suitable for alfalfa, it was decided to use part of it as a dairy. Holsteins were selected, as they were considered the most desirable for the conditions prevailing, and as Mr. Thornton was a convert to pure-breeds, that kind was purchased along with grades.

Since that time, Mr. Thornton has built up this herd both in number and in quality, until he has at present close to 100 head, among which there are many fine individuals.

The herd is headed at present by Minnie Wayne De Kol's Son, a four-year-old bred on the ranch. The product of this ranch is sold as whole milk to a distributing agency in Fresno, which pays them 14 cents per gallon in the summer and 16 cents in the winter. As the herd averages about 3 gallons per day, selling the product in this way makes each cow's daily output a good deal more valuable than if sold for butter-fat. This herd is regularly tested for tuberculosis every six months.

Unlike some, Mr. Thornton does not

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INTER-MOUNTAIN FAIR, BOISE, IDAHO—Eleven firsts and seconds, sweepstakes over all breeds, champion ram first and second, champion ewe first and second, and first for flock of one ram and five ewes of any age.

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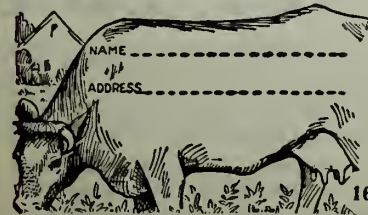
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REMOVING WARTS WITH SULPHURIC ACID.

To the Editor: Several years ago we had a mare with a wart as large as one's fist on her shoulder and another of the same size on the point of her jaw. These warts continued to grow in size and loathsomeness until they attracted flies and got full of maggots, and the odor was disgusting. We used ever remedy we could hear of without doing any good whatever. A veterinary surgeon cut out the warts with a piece of skin as large as a man's hand, but before the wound was healed the warts were coming back, and within a year were as bad as ever. Finally we tried sulphuric acid. The results were favorable from the very start. The warts rapidly shrunk away and finally disappeared entirely. This was four years ago and not a sign of a wart has ever reappeared. The acid is applied to the crown of the wart with a small swab or similar instrument, and only in sufficient quantities to wet the crown surface of the wart. It should be applied about three times a week until the wart is well reduced. Don't use too much acid, and don't keep up the application too long. This cure is published as the record of a very severe case for the benefit of anyone who cares to try out the remedy. ALBERT F. ETTER.

HOG INJURY FROM DIP.

To the Editor: Could you inform me, through your veterinary department, as to what is the trouble with, and the cure for, hogs whose ears appear to be very dry and are curling up around the edges. Otherwise the hogs appear to be all right, except that possibly the whole skin is a little drier than usual. But the backs of the ears seem dry and cracked like chapped knuckles, and in some instances are bleeding a little, and, as I said, they seem to be rolling up around the edges. They are on alfalfa pasture and are being fed grain and raisins. The only thing to which I can ascribe the trouble is that I dipped them in a solution of nicotine to kill lice, holding them in two minutes by the watch, as per instructions on the can. I couldn't see that the operation killed a single louse, and expect to dip again in a few days with a coal tar dip.—M. C. A., El Cajon.

ANSWER BY DR. E. J. CREELEY.

This condition of dry skin and chapped ears is very likely due to the effects of the dip. The condition may be relieved by rubbing the affected parts gently with some oleaginous substance, such as vaseline.

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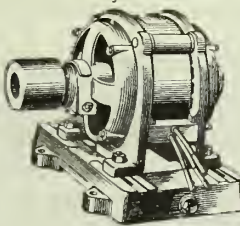
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Diseases of Poultry and How to Prevent Them.

[Written for the PACIFIC RURAL PRESS by
SUSAN SWAYSGOOD.]

Under natural conditions, I do not believe poultry have any of the diseases that trouble our domesticated poultry. In this paper I am going to try to show why this is so and how best we can prevent some of the many ailments that attack our poultry and cause an unlimited amount of work for those that care for them and a great loss besides.

This locality is about one of the best I have ever been in for health. Very few chickens that have ordinary care are ever troubled with roup or any contagious disease, yet sometimes we hear of dead fowls and even sick fowls, but in nearly every case I have traced the cause to some neglect on the part of the owner. Nearly all troubles of the head, throat and lungs are called roup. But a cold in the head is no more roup in a chicken than it is catarrh in a human being; though either may, by neglect, develop into roup or catarrh.

TREATMENT OF COMMON COLDS.—When a chicken is first noticed to have a cold, it may be known by the symptoms, which after all are very much like a cold in people. First there is a sneezing and watering of the eyes and nostrils. If a fowl with a cold is taken at that stage and separated from the flock it may easily be cured, and further trouble prevented by proper sanitation.

When the fowl has reached the stage where it has to open the beak in its effort to breathe and there is a sticky discharge from the nostrils and very often one or both eyes swollen and shut, the cold has merged into roup, and this

requires prompt attention to save the rest of the flock, if it is not already too late.

If taken at the sneezing stage, a warm mash with a little coal oil or any physic should be given promptly and the head dipped in some disinfectant such as Creoleum or Zenoleum according to directions on can, or if there is no physic on hand, a bromo-quinine pill may be given with good advantage.

At the same time clean up and spray the house the sick fowl has been roosting in and give a little physic to all the fowls that run with the sick one. Something that has a pungent odor makes the best kind of a spray for this trouble. Very often you can get rid of all signs of it at one treatment, but the fowls must be watched so that if another case should show up the treatment can be prompt.

COAL OIL TREATMENT.—When the cold has run the gauntlet and developed into roup, there is but one method of dealing with it, outside the hatchet, and that is with coal oil. This may be termed harsh treatment, but in point of fact it is the kindest way because the surest and quickest. I have given this treatment myself and told others hundreds of times, and never knew it to fail when kept up.

In the first place, give the fowls a warm mash, and mix in about one tablespoonful of coal oil for each bird to be treated, give this at night. Next morning fill the water vessels half full of water and fill up with coal oil, being careful to keep all other water away from the fowls; when they drink they will reach down through the floating oil to the water and the coal oil cleanses the head and nostrils without further trouble.

But if there should be a bad case, fill a fruit can with water and oil as in the drinking vessel and dip the fowl's head in, holding it under until it gapes for breath; dip several times, then wipe off the superfluous oil and put the fowl away to rest up in quiet. If this treatment is kept up a few days, the very worst cases will improve under it and eventually get well, but such birds should never be used to breed from, for the offspring will most likely be easy victims to cold and roup.

The prevention lies in keeping the fowls from cold drafts that may catch them at night and by clean quarters, and especially in clean drinking vessels.

CANKER.—Canker is always called roup. I do not know why, for I am quite sure that many cases of canker come from causes that do not produce colds or roup. Male birds that fight through wire netting are often afflicted with canker of the mouth, and it sometimes spreads to the throat and windpipe. If neglected it may develop into diphtheritic roup, which is very dangerous. Whenever a fowl is noticed with small sores on the under part of the beak it should be looked after, for it is more than probable it has canker of the mouth. Swabbing the mouth with peroxide of hydrogen until the foaming ceases will be the safest remedy for that; perhaps it may have to be repeated several times, but it will cure in the end.

IMMUNITY FROM DISEASES ON THIS COAST THAT ARE COMMON IN THE EAST.—While we may say that we are not troubled much with a number of diseases that affect the flocks in the East, there is one disease that appears to be gaining ground in this State, especially in the interior valleys. That is tuberculosis. The last winter I had several inquiries from parties who supposed their fowls had rheu-

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matism, but in my opinion they had tuberculosis of the joints. Up North I saw a whole flock of fine large Barred Rocks that had it, and the owner sent for me to look at them. They said the



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fowls had rheumatism, but when I told them what I thought it was, they killed several to find out. An examination proved that I was correct, and rather than run any risks they killed and burned the whole flock, and even carried the fowls to the river banks to burn them.

Now it takes grit to kill a lot of good-looking fat hens and burn them, but it is the only safe and sane remedy for this terrible thing. After burning the carcasses, the ground should be either well spaded up or plowed, and all houses should be well cleaned and sprayed before any other fowls are put in. It is contagious through the droppings, hence wherever the afflicted fowls have run must be well purified.

It is really no more trouble to get rid of than any other sickness, and anyone having a case can easily stamp it out by cleaning up and burning both carcass and droppings. It is a good plan to spread a layer of straw over the ground where the sick fowls have been kept, then sprinkle coal oil and set fire to it. Fire kills all germs that come in contact with it, and if there is any doubt about it turn the ground under by spading and sow some green feed in it.

Not knowing the cause of this disease, it is hard to say how we can prevent it other than to keep runs and buildings in as clean and sanitary condition as possible. As for attempting to cure, I think it would be dangerous to handle the birds.

LIVER TROUBLES.—Another disease that is quite common is liver disease. And most of these troubles are brought on by a too starchy diet. This is contrary to the general opinion that prevails among poultrymen, who claim all liver troubles come from feeding too much beef scrap. An excessive use of beef scrap or any other animal food is hard on the liver, but not nearly so hard as too much starchy food. Too much starch forces the liver to work beyond its capacity, which results in congestion. Now if we could always catch this trouble in the state of congestion we might save a lot of other trouble, but as a rule the fowl looks better than ever during this stage of the disease, the comb is bright, and not until the disease has made some progress does the pale color develop, which is the first indication of trouble to be noticed.

At the same time there may be a little watery diarrhea. If this stage is allowed to pass, inflammation and enlargement of the liver is very likely to follow. Very often just changing the feed to a ration consisting of more green feed and whole grain will effect a cure; or, when the fowls are noticed to be moping around and the comb pale, give a tablespoonful of castor oil to each and a change of diet for a few days.

All fowls can be kept from liver troubles by following a sane method of feeding. Fowls that exercise and have even a moderate amount of coarse feed with some green feed every day can be kept in good health. Too much starch means too much work for some organs and too little for others. What we want is exercise for all in moderation. Make the fowl's work their muscles to get some of their food and keep down all excessive fat. This keeps up circulation and the blood going through all the hen's anatomy, and keeps every organ in proper working order, not too lazy nor over-worked.

Next week we will take up the diseases of the egg organs.

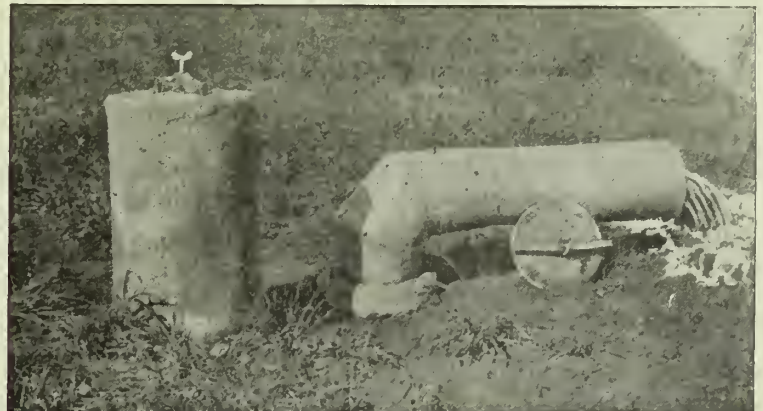
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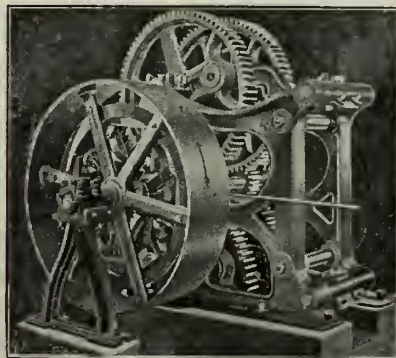
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The Home Circle.

The Story of a Hat.

We were all sitting together one day talking about spring fixings, hats in particular. The most wonderful thing in the world had happened: each one of the four daughters of the Reverend Robert Hardy was to have a perfectly new summer hat!

If you had perpetually and perennially worn an older sister's hat, you would understand. This glorious certainty would never have been but for father's article on "Predestination."

When the editor of the Theological Review sent on the check, father took it at once to mother and announced firmly to what purpose it should be devoted. Mother was pleased as could be, but we girls were simply weak trying to grasp the possibility.

To be sure, we had no idea what "Predestination" meant, and had tried to decide which daughter should read the article and instruct the others. We told Pris it was her duty, being the eldest, but Pris said she was getting tired of that sort of thing and meant to strike.

Honor insisted that she would be only too glad, but we must remember that the next to the oldest daughter hadn't any brains. Even with the best intentions she could never impart the meaning to us, and we knew that only too well.

Luckily I had done the last stunt, so it had to be Alice.

We had just returned from Farnum on a tour of investigation, and were talking it over with mother when Pris let a bomb drop in the camp. Now Pris is just as different from the rest of us as satin is from satine. She's not only the prettiest girl in the parish, but just let her beckon and the world tumbles over itself to follow. Talk of Helen of Troy! But then she was bad, and Pris is as good as gold.

Pris had tried on a certain hat in Farnum the like of which Drayton had never dreamed, except on one occasion. It wasn't exactly daring—it was different! It wasn't conspicuous, but when Pris had that hat on, you couldn't think of anything else.

When Pris told us her intention, we all began to talk, but there was an air about her that made us realize the futility of argument.

Now the hat was a fine white chip trimmed with black velvet, some quills, and rosettes of white satin ribbon. It was simple as could be, but of a shape quite unknown to Drayton. It had unusual curves where Drayton headgear was either turned severely up or uncompromisingly down. When Pris put on that hat, there was no one else to be seen.

The Sunday before, Lotty Cheston had appeared in church wearing a hat rather similar. Lotty's aunt lives here, and members of the family are apt to appear at any time for week-end visits; but that wasn't why we were afraid to have Pris have one.

"Is it becoming?" asked mother, looking at me.

"She's the dearest thing in the world in it," I owned.

"Is it conspicuous or saucy—or—what is the objection, girls?"

"It's too pretty," said Honor. "It's so elegant and unusual it will set everyone talking."

"Yes, mother, old Mrs. Green will be sure to say to me, 'Milly, ain't that hat like that frivolous Cheston girl's? Don't they get such fashions from Paris?'"

"Yes, mother," broke in Alice. "When I wore the chain grandma left me, Deacon Sumner took hold of it and 'trusted' I had the 'ornyments' of a 'meek and

quiet spirit.' That's what you get by being minister's children."

"Just the same I am going to have that hat unless mother objects," said Pris, with the iron of determination in her voice.

"I see no objection," said mother, quietly. We all gasped and just looked at her.

"But, mother," said Honor at last, "we've been taught to think of other people first. It seems as if I never did anything because I'm myself: I'm a minister's child first."

"I don't believe you'll regret many of those things," said mother, "but there is a limit. You are really a human being even before you're a minister's child."

Honor gave mother a grateful look as if relieved to realize the fact.

"I think it just the right moment to tell a story, a true one, and about another hat, when I was a little girl." At the mention of a story we all brightened.

"Once when I was about nine," began mother, "It was decided that I was to have an entirely new hat. Perhaps you have some idea what my feelings were."

We all looked at one another and nodded. Didn't we know?

"I had settled what it should be—a fine white straw, trimmed with pale blue ribbon and knots of big field daisies with their golden hearts and curling white fringes. Mother said it was excellent taste for a little girl and I should have it. We had planned to go in town on a certain Saturday, but the Thursday before Aunt Sarah arrived.

"Now Aunt Sarah was an excellent woman, my mother's sister and devoted to her. She was also fond of my sisters, but somehow I could never get on with Aunt Sarah. Instinct told me that this aunt neither understood nor liked one of her nieces. I'm afraid I was especially naughty whenever she made us a visit.

"Of course, Aunt Sarah went to Boston, too, and I had a presentiment of coming evil.

"In the millinery department of a principal store we passed by a table loaded with children's hats ornamented with trimmings made of straw. I loathed them the moment my eyes fell upon the curious array. Aunt Sarah paused and glanced over the table. I pulled mother's hand and tried to urge her on.

"Mary," said Aunt Sarah, "this is just the thing! Already trimmed and unusually durable."

"Mother! Mother! I don't want a hat like that," I pleaded.

"Mother hesitated. 'We had decided upon bine ribbon and daisies,' she began.

"'Nonsense!' cried Aunt Sarah. 'How long would that child wear such a delicate hat? You just let me choose.'

"Mother looked as uncomfortable as I felt, but I think she stood in some awe of her sister. At any rate Aunt Sarah had her way.

"Girls, if you could have seen that hat! It was a coarse, yellow straw, too large for my little head. I felt as if a wash basin had settled down upon it. It was trimmed with ropes of straw trimming gathered into a huge black and yellow rosette at the back, then falling in two streamers, each terminated by a large green glass bead. It was further ornamented by a straw bird of Paradise with simply malevolent glass eyes; and the tail cruelly scratched my tender little neck.

"The very sight of that hat was hateful, and to wear it was a punishment. My own wishes had been set aside ruthlessly, and a promise had been broken. I shed bitter tears over that hat.

"One Sunday for some reason that hat was left on the parlor sofa. Now we children were not supposed to go into that sacred room by ourselves, but I man-

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aged to steal in. When Sunday came, it was found that the head of the wonderful bird was missing. It was laid to the cat, who had committed similarly unholy deeds. The bird was removed, and I wore the hat with a lighter heart.

"Curiously enough, that was a short-lived article of headgear. So many things happened to it! First the glass beads disappeared, then the straw streamers began to ravel. Finally mother removed them and put on a band and some rosettes of golden brown velvet ribbon which was a comfort.

"In August Aunt Helen was married, and in church I wore my white frock and a brand new hat—a fine white chip trimmed with pale blue ribbon and field daisies. The other hat was relegated to everyday use, and I am sure found its end on the rubbish heap that fall."

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"Mother," said Pris, curiously, "tell us! What happened to that bird?"

"I never told my own mother until I was much older than any of you. Well—I stepped on it! I stepped on it more than once. When I had broken it, I carried the head up into the playroom and dropped it down between the mop-board and the wall. It is doubtless there now, as they plastered the room next fall."

"What did grandma say?" inquired Alice with wide opened eyes.

"She said, 'I don't know as I can blame you one bit,'" said mother, triumphantly.

"O mother, you are such a dear," cried Pris, jumping up to kiss her; and a great burden seemed to roll from us all.

"But, mother," said Honor, "you don't mean we are never to care what people say?"

"Not much," said mother, frankly, "if you're quite sure you're right. We must have independence of soul as well as consideration for others. Take Mrs. Green. There are some things better worth remembering than her words. I can't forget how she came and helped nurse when Milly had the diphtheria."

"And Deacon Sumner's given me many a ride, even if I haven't a meek and quiet spirit," cried Alice.

"I think you are making the application all right," said dear mother, smiling, and as usual having the last and best word.—Kate Louise Brown.

Recovered With Interest.

There was a certain poultry fancier who bought some buff Orpingtons, which were delivered very early in the morning by a careless messenger, who left the door of the fowl-house open. The new owner found that his purchase had disappeared. After scouring adjacent farmyards for buff Orpingtons, he went off in anger to talk to the sender. "That ass you sent with the birds left the door open. Pretty sort of messenger! I've been hunting all morning, and only got back eleven." To this the seller replied: "You've not done so bad. I only sent you six."

It Came High.

Seth Woodbury was a tight-fisted, hard-hearted old farmer. His brother William dying, the neighbors said, from lack of proper treatment, Seth hitched up and drove into town to have a notice about his death inserted in the weekly newspaper.

"There ain't no charges, be there?" he asked anxiously.

"Oh, yes, indeed," answered the editor, "our price is \$2 an inch."

"Cracky!" muttered the old man, "an' Bill six foot two!"—Metropolitan.

Peace and Good-Will.

A Southern Missouri man was being tried on a charge of assault. The state brought into court as the weapons used a rail, an axe, a pair of tongs, a saw and a rifle. The defendant's counsel exhibited as the other man's weapons a scythe blade, a pitchfork, a pistol and a hoe.

The jury's verdict is said to have been: "Resolved, that we, the jury, would have given one dollar each to have seen the fight."—Exchange.

"The rain it falls upon the just,
And, too, upon the unjust fellows;
But more upon the just, because
The unjust have the just's umbrellas."
—Judge.

BOYS

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Notice to Stockholders.

The Regular Annual Meeting of the Stockholders of the GRANGERS' BUSINESS ASSOCIATION will be held at the office of the Company, No. 240 California Street, San Francisco, California, on Tuesday, the Tenth day of June, 1913, at 10 o'clock A. M., for the purpose of electing a Board of Directors to serve for the ensuing year, and for the consideration and transaction of any other business that may be brought before the meeting.
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R. H. CHILDS, Secretary.
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THE MARKETS.

San Francisco, May 21, 1913.

(Unless otherwise noted, quotations represent prices paid to the growers.)

Cereals.

WHEAT.

Considerable wheat is being brought down from the North all the time, prices here being largely governed by conditions in other markets. There is a fair demand, and the general situation is strong, all varieties being quoted somewhat higher.

California Club, ctl. \$1.65 @1.67½
Forty-fold 1.67½ @1.70
Northern Club 1.65 @1.67½
Northern Bluestem 1.77½ @1.82½
Northern Red 1.65 @1.80

BARLEY.

There is a good steady demand for spot barley, and with offerings comparatively light, values are very firmly held. The May option is quoted at \$1.50, and there is a fair buying movement at that figure.

Brewing and Shlpping... Nominal
Choice Feed, per ctl. \$1.45 @1.50
Common Feed 1.40 @1.42½

OATS.

There is nothing new in prices, but all lines are firmly held, with an upward tendency in northern white oats, and the local buying movement keeps up fairly well.

Red Feed \$1.65 @1.85
Seed Nominal
Gray Nominal
White 1.70 @1.75

CORN.

There is not much trading here at present, but Eastern varieties show a little firmer tendency as to prices. California stock is in fair supply at the moment, with no great demand.

Cal. Yellow \$1.60 @1.65
Eastern Yellow 1.55 @1.60
Eastern White Nominal
Kafir 1.50 @1.55
Egyptian 1.70 @1.75

RYE.

Offerings of northern rye are rather firmly held, but there is not much demand and local quotations are little more than nominal.

Rye, per ctl. \$1.40 @1.45

BEANS.

The general situation in beans has not changed in several weeks, though a few minor price changes are noted, in line with the prevailing tendency. White beans are very firm, with a slight advance in the small variety. Supplies held in the East are mostly of poor quality, and California stocks have been reduced to very small compass by the steady shipping demand of the last month. Colored beans in general remain weak, with large supplies and no demand worth mentioning, as buyers are placing no orders beyond their immediate needs. Most varieties stand about as before, but red kidneys are a little lower. It is too early to get any idea of new crop prospects.

Bayos, per ctl. \$3.25 @3.45
Blackeyes 3.15 @3.25
Cranberry Beans 4.70 @5.00
Horse Beans 2.35 @2.50
Small Whites 5.50 @5.60
Large Whites 4.90 @5.10
Limas 5.35 @5.45
Pea Nominal
Pink 3.40 @3.50
Red Kidneys 3.90 @4.00
Mexican Red 4.00 @4.20

SEEDS.

Values are quoted as before, but are little more than nominal in the absence of any active trading on most descriptions.

Alfalfa Nominal
Broomcorn seed, per ton. \$27.00 @28.00
Brown Mustard, per lb. 3¼¢
Canary 6 @6½¢
Hemp 3 ¢
Millet 2½¢ @2¾¢
Timothy Nominal
Yellow Mustard Nominal

FLOUR.

There is nothing new in prices, though the market is firm in sympathy with advancing grain prices.

Cal. Family Extras. \$5.60 @6.00
Bakers' Extras 4.60 @5.20
Superfine 3.90 @4.10
Oregon and Washington... 4.90

Hay and Feedstuffs.

HAY.

Arrivals for the last week have been light, but the demand here is extremely small, as buyers are holding off as much as possible in anticipation of somewhat easier prices as the new crop is marketed. Several cars of the new hay have come in during the week, and more is expected from now on. Prices are quoted a little lower on several varieties, even fancy wheat being easier. Growers who have harvested their hay show no disposition to sell in a hurry, holding their hay, for the most part, at prices above parity with the city market, though dealers report some purchases at lower figures. Outside States offer some hay for shipment to this market, but no such shipments are expected until the crop is harvested and the year's shortage better known. No great amount of new alfalfa has appeared here, and what has come in finds ready sale.

No. 1 Wheat, or Wheat and
Oat \$19.00 @21.00
do No. 2 16.00 @18.50
Lower grades 15.00 @16.00
Tame Oats 16.00 @21.00
Wild Oats 14.00 @17.50
Alfalfa 12.50 @14.00
Stock Hay 9.00 @11.00
Straw, per bale. 35 @ 80¢

FEEDSTUFFS.

All descriptions of feed are in strong demand, and values in general are firm. Arrivals of bran and shorts from the north are running light and bran shows another advance of \$1 per ton.

Alfalfa Meal, per ton. \$22.00 @24.00
Bran, per ton 29.00 @30.00
Oilcake Meal 35.50 @36.50
Cocoanut Cake or Meal. Nominal
Cracked Corn 34.00 @35.00
Middlings 33.00 @34.00
Rolled Barley 31.00 @32.00
Rolled Oats 35.00 @36.00
Shorts 27.00 @28.00

Garden Truck.

VEGETABLES.

New red onions are offered in large quantities and now sell at very easy prices. Bermudas show a wider range, yellow stock being lower and white higher, while Australian and old river stock are unchanged. Cucumbers are becoming fairly plentiful, though prices are still rather high, and a good many tomatoes are arriving from Florida. Summer squash continues to decline, as arrivals are steadily increasing, and green peas show quite a sharp drop. String beans are plentiful but steady, with a premium for fine lots, and rhubarb is a little higher. The asparagus market keeps up fairly well at former prices, with fancy lots bringing \$1.50, while surplus offerings usually find a ready market in the cannery trade, bringing from 60¢. to \$1. Cabbage has advanced sharply, while Cauliflower is lower.

Onions: River, Yellow, ctl. 85¢ @ \$1.00
New Red, sack 70 @ 85¢
Australian 4.00 @ 4.50
Bermuda, crate 85¢ @ 1.75
Garlic, per lb. 6 @ 8¢
Cucumbers, per box. 2.00 @ 2.50
Cabbage, per ctl. 1.00
Carrots, per sack 75¢
Cauliflower, per doz. 30 @ 40¢
Rhubarb, box 75¢ @ 1.25
Artichokes, crate 1.25 @ 1.50
Green Peppers, lb. 20 @ 35¢
Lettuce, crate 50¢ @ 1.00
Green Peas, sack 1.75 @ 2.25
Asparagus, box 60¢ @ 1.50
String Beans, lb. 5 @ 10¢
Summer Squash, box. 75 @ 90¢

POTATOES.

New potatoes have been shaded a little at the inside figure, but all choice offerings are firmly held, as the supply is rather light for this season. The main crop is late, and values for old stock remain about the same, supplies being ample for all requirements.

River Whites, ctl. 50 @ 75¢
Salinas, ctl. 75 @ 90¢
Oregon, ctl. 50 @ 75¢
New Potatoes, ctl. \$ 1.50 @ 2.00

Dairy Produce.

POULTRY.

Some Eastern hens have come in, but arrivals for several days have been very light, and with little coming in from nearby points the market was almost bare for a day or two. Values accordingly show renewed firmness, and prices for fryers and large broilers are somewhat

higher, while practically everything arriving sells readily at full figures.

Large Broilers, per lb. 28 @32 ¢
Small Broilers, per lb. 28 @30 ¢
Fryers, per lb. 28 @30 ¢
Hens, extra, per lb. 19 @20 ¢
Hens, large, per lb. 18 @19 ¢
Small Hens, per lb. 17 @18 ¢
Old Roosters, per lb. 10 @12 ¢
Young Roosters, per lb. 22 @25 ¢
Squabs, per doz. \$ 2.00 @ 2.50
Geese, per pair. 1.50 @ 2.00
Ducks, doz. 4.00 @ 6.00
Turkeys, dressed 22 @24 ¢
do live 21 @22 ¢

BUTTER.

Prices show very little fluctuation, the first grade being slightly higher, while extras are firm at the old level. Arrivals are fairly large and some stock is going into storage.

Thu. Fri. Sat. Mon. Tu. Wed.
Extras ... 27 27½ 27½ 27 27
Firsts ... 26 26 26½ 26½ 26½ 26½

EGGS.

Extra eggs have taken quite a jump, after a long period of bedrock prices, and are now firm at an advance of 4¢ over a week ago. Production in nearby districts is still large, but southern buyers are coming to this part of the state for supplies, reducing the amount available for this market.

Thu. Fri. Sat. Mon. Tu. Wed.
Extras ... 19 19½ 19½ 20 21 23
Firsts ... 18 18 18 18 18 19
Selected
Pullets... 16½ 16½ 16½ 16½ 17½ 19

CHEESE.

Local flats have dropped ¼¢ from the last quotation, but are firm at this level, while Y. A.'s show an advance. Monterey cheese is also a little stronger, though supplies are too plentiful for any marked advance.

Fancy California Flats, per lb. 14½¢
New Young Americas, fancy. 16½¢
Monterey or Jack Cheese. 14½¢ @15 ¢

Deciduous Fruit.

In the berry line, blackberries and gooseberries have been added to the list, though arrivals are not yet very large and prices are high. Raspberries also bring fair prices, though supplies are increasing, and strawberries are having a large sale at low prices. The Purple Guigne cherries are about cleaned up, and prices have advanced after a few days of weakness, black Tartarians being in strong demand. Supplies of apricots are increasing, but prices are still rather high. A few small lots of figs have appeared from Arizona. Apples find little demand, but Newtowns are beginning to clean up and prices show some improvement.

Blackberries, crate \$1.50
Gooseberries, drawer 75¢
Raspberries, crate \$ 1.50 @ 1.75
Strawberries:
Longworth, chest 4.00 @ 5.50
Other varieties, chest. 3.00 @ 4.00
Apples: Red, box 75¢ @ 1.00
Newtown Pippins, 4-tier. 1.50 @ 1.75
Cherries:
White, box 50 @ 60¢
Black, box 75¢ @ 1.15
Apricots, crate 1.75 @ 2.00
do box 1.25 @ 1.50

Dried Fruits.

All lines of dried fruit are still quoted at the old prices, notwithstanding the increased inquiry for some descriptions, and packers look for little or no change until the new crop comes on the market. Buyers are taking some interest in the new crop, but so far prices have not been well enough established to quote. Prunes continue to move fairly well, and a good clean-up of the old stock is expected. Apples also have been moving off a little better, the Eastern market showing some improvement, and prices for shipment have advanced slightly. Apricots find some demand, and with old stock closely cleaned up and prospects of continued shortage prices are very firm. Peaches are quiet but steady, practically everything being controlled by packers. There is nothing new in raisins, but there is a feeling that prices will be higher. The New York Journal of Commerce says:

"California prunes continue to gain market strength and quotations on spot supplies have been advanced in some sizes.

"According to brokers and jobbers, indications are that present prices will not only be maintained, but that because of

the fact that stocks in the distributing markets are lighter now than at the same time for a number of years, and also the fact that the new crop will be a decidedly short one, a pronounced enhancement in values is a certainty. The carry-over from the last crop will undoubtedly clean up by the time the new one is available, the prospects for which are about 140,000,000 pounds, as compared with 200,000,000 for 1912.

"Spot stocks of apricots are limited and the market is firm. The new coast crop is getting attention because there is only a small stock of standards in the supply out there. Forecasts are that the new crop will not much exceed in quantity one-half of the last one and that higher prices will surely rule. No change is reported in peaches, the market continuing steady on good quality. With no new development in the spot or coast situation because of increasing inquiry, raisin quotations on 3 and 2-crown Muscatels advanced ¼ and ½¢. An average crop for 1913 is expected, but new ideas in controlling and marketing it, give the trade reason to believe that prices will be considerably higher than for the last crop.

Evap. Apples, per lb. 3 @ 4¢
Apricots Nominal
Figs: White Nominal
Black Nominal
Calimyrna Nominal
Prunes: 4-sz. basis. 2½ @ 4¢
(Premium: 1¢ for 40s-50s; 2¢ for 30s-40s.)

Peaches 3½ @ 4½¢
Pears 4 @ 7 ¢

Raisins—
Loose Muscatels in sweatbox 2½¢
Thompson's Seedless. 5 ¢
Seedless Sultanas 3 @ 3½¢

Citrus Fruits.

Shipments of oranges from southern California are going East at the rate of about 60 cars daily. The cars are loaded mostly with sweets and seedlings, though there are some of the navels still being shipped, and the earliest of the valencias are moving. Those who are fortunate enough to have sweets and seedlings are making money, as prices are from \$4.25 to \$4.60 delivered. Navels are commanding as high as \$4 f. o. b., and valencias are selling at about \$4 f. o. b.

Lemons are going East as fast as cured, and prices are running from \$6 to \$6.50 per box delivered.

Florida is closing its citrus shipments after a very successful season. Prices for Florida fruit have held up well the whole season, and shipments of oranges have been larger than ever before, the shipments being over 26,000 cars.

The San Francisco demand for oranges is only moderate, though arrivals move off fairly well. Navels are firmly held at last quotations, while valencias are higher. Fancy lemons also show an advance, and all offerings find ready sale.

Oranges, per box—
Valencia \$ 4.50 @ 5.00
Navels, good to fancy. 3.50 @ 4.25
Grapefruit, seedless 2.50 @ 5.00
Lemons: Fancy 6.00 @ 7.00
Choice 5.00 @ 6.00
Lemonettes 3.50 @ 4.00
Limes 5.00 @ 5.50

Nuts, Honey, Hops, Etc.

NUTS.

Supplies of all lines of nuts are very light, and the market for almonds is firm, in view of the poor crop outlook both here and in Europe. The demand is limited, but fair for this time of year.

Almonds—
Nonpareils 17½¢
I X L 16½¢
Ne Plus Ultra. 15½¢
Drakes 12½¢
Languedoc 11½¢
Hardshells 8 ¢
Walnuts, 1912 crop—
Softshell No. 1. 16 @16½¢
Hardshell No. 1. 15 @15½¢
No. 2 10½¢
Budded 17 ¢

HONEY.

New honey has not yet commenced to arrive, and old stock is fairly well cleaned up. Values are accordingly steady, though there is very little demand for any grade at present.

Comb, white 15 @16 ¢
Amber 11 @12 ¢
Dark 9 @10 ¢
Extracted, white 8 @10 ¢
Amber 6½ @ 7 ¢
Off Grades 5 @ 6 ¢

BEESWAX.

Prices remain as for some time past, though there is very little business at present. Supplies here are light and closely held, with nothing coming in.

Light	30	@31	c
Dark	29	@30	c

HOPS.

Old stock is pretty well cleaned up, and so far little has been done on the new crop, prospects for which are said to be good. Values are little more than nominal.

1912 crop	12½	@18	c
1913 contracts	13	@15	c

Live Stock.

Prices still tend downward, though the only change of importance is a sharp decline in hogs, which have been arriving faster than they could be taken care of. Dressed young lambs have also taken another drop, with liberal supplies, and mutton is rather easy.

Steers: No. 1	7½	@	7¾	c
No. 2	7	@	7¼	c
Cows and Heifers: No. 1....	6½	@	6¾	c
No. 2	5¾	@	6¼	c
(Grass cattle, ½c less.)				
Bulls and Stags.....	2½	@	4½	c
Calves: Light			7	c
Medium			6½	c
Heavy	5	@	6	c
Hogs: Grain-fed, heavy....	7	@	7¼	c
150 to 250 lbs.....	7¼	@	7½	c
100 to 150 lbs.....	7	@	7¼	c
Prime Wethers, unshorn....	5¼	@	5¾	c
Ewes, unshorn	4½	@	4¾	c
(Shorn sheep, ½@¾c less.)				
Lambs: Suckling	5½	@	6	c

DRESSED MEATS.

Steers	12	@12½	c
Heifers	11	@11½	c
Veal, large	10	@11	c
Small	12½	@13½	c
Mutton: Wethers	11	@11½	c
Ewes	10	@10½	c
Suckling Lambs	11½	@12½	c
Dressed Hogs	12½	@13	c

WOOL.

Eastern prices are low and unsettled, and local buyers are inclined to hold off, awaiting the establishment of values. Only a little of the spring clip has been sold, and values are little more than nominal.

Spring clip:				
Southern mountain, free...	9	@12	c	
Northern, year's staple...	14	@16	c	

HIDES.

The hide market shows little change, but the market is rather easy, buyers being inclined to hold off for the time being.

Heavy Steers, over 56 lbs.	14	c
Medium	13	c
Light Steers, under 48 lbs.	12	@13 c
Heavy Cows, over 50 lbs..	12	@13 c
Light Cows, 30 to 50 lbs..		13½c
Kip	14	@15½c
Veal	17	@18½c
Calf	17	@18½c

Dry—				
Dry Hides	24	@25	c	
Dry Kip, 10 to 15.....	24	@25	c	
Dry Veal, 5 to 10.....		29	c	
Dry Calf, 7 down.....		29	c	

HORSES.

Some unusually attractive stock ranging from 1200 to 1600 pounds has been offered here of late, and sales have received more attention than for some time past, with large teaming firms showing considerable interest. The prices realized, as a rule, were well up to appearing quotations.

Heavy drafters, 1700 lbs. and over	\$300@350
Light Drafters, 1500 to 1650....	225@250
Chunks, 1350 to 1500 lbs.....	200@225
Wagon Horses, 1250 to 1350....	150@175
Delivery Horses, 1050 to 1250..	80@105
Desirable Farm Mares.....	75@ 90

MULES.

1200 lbs.	\$200@250
1100 lbs.	150@200
1000 lbs.	125@175
900 lbs.	75@125

USE FOR INSECT-KILLED TIMBER

As a result of experiments conducted by the Forest Service, the Service has recently consummated a sale of 500,000 of the insect-killed and dying poles. In this case, therefore, the question of protection against insects and fire, as well as that of utilization, has been solved in a very profitable manner.

That the utilization of insect-killed timber has become a serious problem in

some parts of California is not generally known. The insects work so quietly and usually in so inconspicuous a manner that the damage which they cause annually is usually overlooked. It is only when large bodies of timber are destroyed in a short time that more than local attention is attracted.

Such an attack has occurred within the past few years on the east side of the Sierras in Lassen county. Here a large amount of lodgepole pine, known locally as 'amarack', has been killed. A prominent entomologist who made a study of the area states that while the destruction has been going on at a constant annual rate of loss for many years, the greatest outbreak has developed very suddenly. More than half of the timber has been killed during the past three seasons. In some places the attack has been so severe that scarcely any trees over 10 inches in diameter are living.

The importance of cleaning up an area of this kind is very great, first, as a means of insect control; second, because the dead trees constitute a very serious fire menace. The felling and burning of the dead and attacked material would be very expensive and at the time very destructive.

After considerable study, the problem was solved in the following manner: Strength tests on lodgepoles and other pole timbers showed that when they are reduced to a uniform top diameter there is practically no difference in strength values between air-seasoned lodgepole pine and Western red cedar, the standard pole timber of the Pacific Coast region. In stiffness the pine poles exceed the cedar by about 25%. It was further demonstrated that when reduced to the same size at the ground-line or load point, the air-seasoned pine exceeded the cedar in strength by 19% at the elastic limit and 12% at the maximum.

It was also shown that the pine poles, although naturally not as durable as cedar, could be given a life of approximately twice that of cedar by a treatment with creosote or dead oil of coal tar. The cheapness of the pine makes it possible to place the treated poles on the market at a figure as low or lower than that obtained for the cedar.

PUBLISHER'S DEPARTMENT.

We have a card sent out by Symmes & Means announcing the association of Mr. A. E. Chandler with the firm, which will be known in the future as Symmes, Means & Chandler. The firm has opened spacious and well appointed offices in the Holbrook Bldg., 38 Sutter street. Perhaps no firm of agricultural engineers in the West has made greater progress during the past five or six years than has this one. When L. W. Symmes opened his office first in San Francisco he had lots of friends, good backing, but very few clients. Since then the business has grown very fast, and it was in the spring of 1910 that Thos. H. Means resigned a good position with agricultural department of the government to become the second member of the firm, and now by the acquisition of Mr. Chandler the firm is further strengthened, as the new member is particularly strong as a water right specialist. During the past two years this firm has handled some of the largest land propositions that have been pulled off, among them being the Solano Irrigated Farms Company and the Los Molinos land colonization. Besides California work, the firm has acted in advisory capacity on big outside propositions, one being connected with one of the South American governments and another in Louisiana. The firm is now well balanced as to qualifications, and as each member is a "live wire" there can be no doubt as to its future growth and usefulness.

John Zurr, the cactus expert of Santa Rosa, is planting out a large tract to Burbank cactus. Mr. Zurr has devoted considerable time to the cultivation of

this form of stock food, and has lately shipped cactus to South America, Spain and Italy. He expects to travel over the

State this summer demonstrating Burbank cactus as a commercial food for animals and poultry.



The Power of Silent Service

If the crowd on the stock exchange kept quiet and let one man talk, that man could be heard in every corner of the room. But the shouting members produce a composite of sound, so that no one trader is understood except by a small group around a particular trading post.

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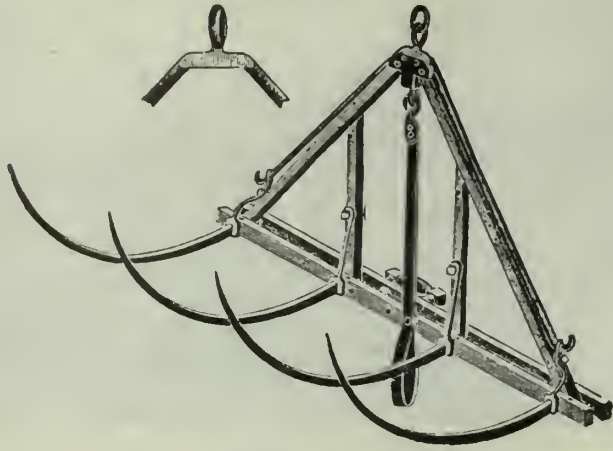
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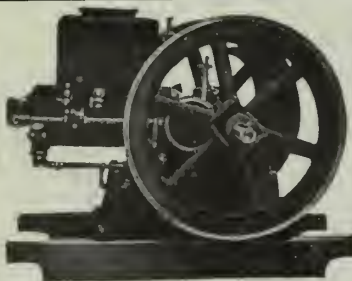
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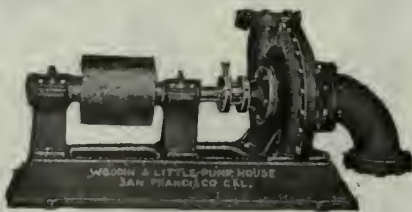
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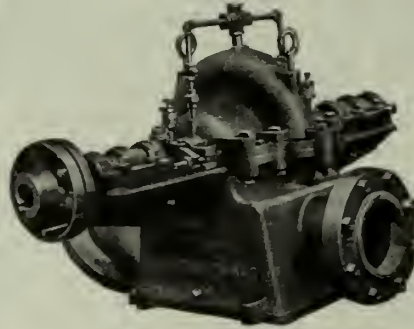
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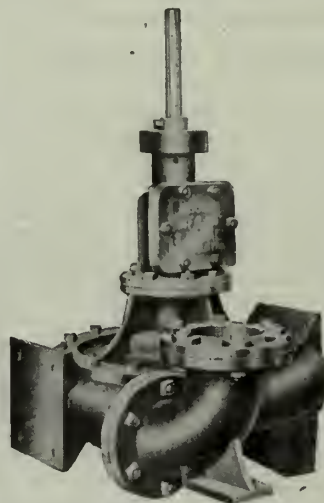


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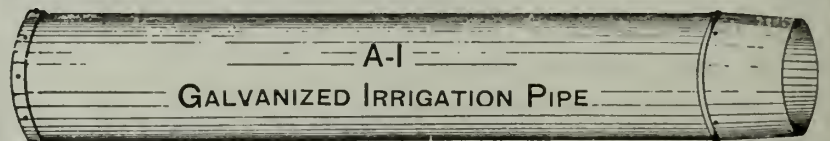
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AMES-IRVIN CO., 8th and Irwin St., San Francisco.

THE PACIFIC RURAL PRESS

Vol. LXXXV. No. 22.

SAN FRANCISCO, SATURDAY, MAY 31, 1913.

Forty-Third Year.

What the West Sacramento is Doing.

[BY THE ASSOCIATE EDITOR.]

California has many wonderful land development ventures, where property formerly of but little value, or better say, that has been put to little valuable use, has been changed into a region of small, rich farms, but we have seldom been as interested in any development work as we were in that of the West Sacramento Land Company in Yolo county, directly across the river from Sacramento.

There are a number of reasons why this is of great interest to any



One of the Most Profitable of Sacramento County Crops.

individual who believes in progress and why it is important to the State. One is that it is a part of about the richest and largest area of land in California and at the same time the most neglected. In the second place this great piece of rich land, the Yolo basin, is in the center of a district that was settled by the first Americans coming to California and in the center of the development that followed the rush after gold in the early fifties, and yet was neglected. For another reason it is one of the finest pieces of land in California for location, climatically and commercially. It is close to the State capital city and only a few hours ride to the bay cities by several railroad lines or by cheap rapid and efficient water transportation. Likewise it is land that is rarely, if ever, equalled in its possibilities for diversified farming. It is at the top for diversified farming, in soil, climate and markets. Combined with the advantages named is the fact that in its condition up to a short time ago it was as nearly worthless for agricultural or productive purposes as any land could be. There are other interesting things about this in its natural condition that cannot be expressed so concisely.

Physical Outline.—The reason for all these conditions is clear after a look at the way nature left it. This West Sacramento tract is a part of the great Yolo basin lying along the west side of the Sacramento river and extending from the Montezuma hills in southern Solano county up northwest of Sacramento and covering the larger part of 100,000 acres. As the Sacramento river with its tributaries has washed down the lavas, granites and shales of the Sierras and Coast range, especially the former, to make the floor of the valley, it has first filled up the east side of the valley and the upper part, or the part that lies nearest the mountains. The Yolo basin is part of the unfinished work of the river. It lies first on the west, the unfinished side of the river, and second toward the mouth of the river, after most of the sedi-

ment has had a chance to have been deposited. It therefore lies lower than the surface of the river at or near high water, and at flood season every year is inundated. Then as the water becomes less in the river it recedes around the edges and the grass can come up. The cattle and sheep from the mountain ranges can then come down and have green, nutritious feed while the uplands are dry and bare, yet they cannot come too far, for the central part of the basin and that near the river is so low that the tules alone can thrive. It is also intersected by bayous and lagoons in which cattle would sink and be lost. It is the tule area that has been reclaimed in this venture.

Soil.—The soil where the tules grow is not, however, composed of tule roots with a little sediment mixed in, as are the famous peat lands of the delta country. The soil is a real sediment in which tules grow. When the surface layer of tule roots is broken up and allowed to decay it makes one of the richest and finest loam soils that it is possible to find. The tule roots make an abundance of humus, about 10%, which means nothing more than that it is a rich soil with a great deal of humus, but not enough to be any excess.

Combined with the good humus content is an excellent mineral composition. It is so far from the mountains that rocks and gravel have been left behind. Sand is plentiful near the river bank, but not a rock nor a genuine pebble can be found in it. Toward the edges, far from the river, it is so far from flowing water that only the finest kind of particles have settled, and the soil is heavy. Toward the river, in the regular tule district there is a good mixture of sand, 20 to 30%, enough to make a good loam.

Analysis of many samples show nitrogen, 0.317%; phosphoric acid, 0.257%; potash, 1.496%; lime, 0.571%. That is very rich, far above normal in everything but lime. The lime would naturally be rather



Hops on the Bottom Lands in Sacramento County

below normal in the top soil with water and tule on it all the time, but as the rocks from which the soil is derived are rich in lime, the subsoil is also rich, and as the roots go down they find enough to keep the soil sweet for ages as well as to give all the necessary food. On drying out and weathering, the land is not sour, but yet it may be made even better by putting on some lime.

The actual demonstration of soil type and possibilities can be seen on the thousands of acres of rich land adjoining the river on each side below Sacramento, which is of exactly the same type and formed in exactly the same way, though the problem of reclamation is not just the same.

(Continued on Page 616.)

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FRANK HONEYWELL - - - - - Manager
W. H. SCHRADER - - - - - Adv. Manager
D. J. WHITNEY - - - - - Associate Editor

CALIFORNIA WEATHER RECORD.

The following rainfall and temperature record is furnished the PACIFIC RURAL PRESS by the United States Department of Agriculture Weather Bureau, at San Francisco, for the week ending at 5 p.m., May 27, 1913.

Stations.	Rainfall Data.			Temperature Data.	
	Past Week.	Seasonal to Date.	Normal to Date.	Maximum.	Minimum.
Eureka .....	.23	34.37	44.66	60	48
Red Bluff .....	.12	18.24	24.45	94	58
Sacramento .....	.08	7.65	19.87	92	44
San Francisco ..	.24	11.93	22.02	62	48
San Jose .....	.56	6.23	16.63	80	46
Fresno	T	5.90	9.50	98	56
Independence...	.01	4.11	9.36	88	50
San Luis Obispo	.02	7.73	20.30	74	46
Los Angeles	T	12.79	15.53	76	54
San Diego .....	.00	5.81	9.94	66	56

The Week.

The comparative peace which for the past six months or so has been resting upon the activities of the State Horticultural Commission has been broken and again turmoil rages around the head of Dr. A. J. Cook, the Commissioner. One by one, the former heads of the different divisions of the work have been dropped, or found it necessary for their own comfort to drop out, until now, out of the leading men in the different lines of work under the State Commission at the start, only one or two are left. Deputy Commissioner G. E. Merrill, himself a Cook appointee, has been notified that his services also will not be needed.

Merrill has made detailed charges against Cook on the grounds of inefficiency or unsuitability for the place. These are, that "competent men have been discharged," Bremner, Carnes, Amundsen and Miss Bird. This is taken to show Dr. Cook's inability to direct men. It is worth noting that all of these were considered capable and efficient under former administrations and were discharged not on the grounds of inefficiency, but for being "temperamentally unsuited" to the work.

Next, it is charged that Dr. Cook has practiced "political entomology," in endeavoring to raise undue alarm over the danger of the alfalfa weevil and the fruit-fly, both of which must be kept out of California, but neither of which are the menace that the Commissioner would have us believe. Merrill does not mention the eel worm, whose presence in Nevada potato fields was used to cause big agitation here until it was discovered in places nearly all over California.

Thirdly, it is claimed to have been a "blundering mistake" to take the preparation of the crop report work out of the hands of the Deputy Commissioner, a field man, and putting it into the hands of the Secretary, an office man. An exami-

nation of the last crop report makes this seem true.

Fourthly, it is charged that the Commissioner is doing wrong in making most of his new appointments from the Middle West and ignoring California trained men that are better fitted for the positions than men from other States are at all likely to be.

Another charge is that the publications of the Commission are to a great extent neither scientific nor practical, specifically referring to several bits of misinformation in a recent work on California Insects, due largely to being too hastily prepared.

Merrill's prepared charges rest there. As a matter of fact, however, the Commissioner has been in hot water most of the time since his appointment, for all sorts of reasons. Prof. Wickson just a year ago remarked in these columns that Dr. Cook henceforth should make an excellent official, since there was a limit to the number of mistakes a man could make, and the Doctor (Professor was the term used) had had about exhausted the list. It seems this idea was likewise a mistake. Now, we are informed, the opposition that developed when previous difficulties arose has all revived and the showdown will soon come.

No one will deny that Dr. Cook is personally a very estimable old gentleman and is endeavoring to administer the Commission properly, that is, according to the line he thinks best. The fact that so many capable men have had to leave the Commission and the fact that there has been trouble for one reason or another apparently is a good indication that there is a "temperamental unfitness" somewhere.

This is one of the worst things that could occur. The State was never so much convinced of the value of Governmental assistance to agriculture as now. Under these conditions no man is too big for Commissioner, and some big mistake that will come to public notice will be disastrous, not only in the matter it affects immediately, but in causing the loss of this public support that now is so promising. The quarantine work that is to protect our agriculture from injury by new pests deserves every support that can be given; the search for parasites should be conducted with the greatest efficiency possible, and the many other lines of work of the Commission conducted to give the best possible service. It is a necessity to have the office conducted with as great efficiency and as little friction as possible.

A Tuberculosis Conference.

Apropos of the agitation over bovine tuberculosis that has developed in the State Dairy Association and other places during the past year, the coming visit of the greatest authority on bovine tuberculosis in the United States, Veranus A. Moore, of New York, has aroused great interest. Dr. Moore has been quoted as an authority on the test by those favoring and those opposing it. Another big authority, Dr. M. D. Ravenal, Professor of Hygiene of the University of Wisconsin, will also be here during the summer, and a Conference on Bovine Tuberculosis is being proposed. The new dairy laws give much attention to tuberculosis and frequent articles come out apparently proving or disproving some point almost beyond dispute, only to be met by other statements apparently as authoritative that seem to prove the opposite. From the standpoint of truth and public welfare, everyone should put preconceived ideas aside, and if the presence of such authorities can be taken advantage of by a conference, great good could result.

Out in the World.

[BY THE EDITOR.]

(In our issue of May 17, Professor Wickson gave leading facts about the assembling in New York of the American Commission on Co-operation for Agricultural Production and Rural Finance. He now endeavors to catch some of the spirit of that eventful day.—ASSOCIATE.)

This is a voyage of discovery, and as becomes a discoverer, we are standing on the prow of the ship peering into the distance which, in the words of the poet, looks rather blue.

As a matter of fact, we are not standing on the prow, except for the purposes of this composition, for which it is indispensable to maintain that attitude. If we remember the records correctly, Jason, Cabot, Columbus and Drake were always standing statuesquely on their prows when they hit anything, and far be it from us to be untrue to such exemplars. It is true that they were all looking for loads of gold and we are out for spirits, but we cannot see that that smashes the prow precedent. How can we conceive of Jack London being anywhere but there while sounding the mysteries of life in the Arctic or of the atoll, shading his orbs from the glare of the noonday or pushing them out into the gloom of the midnight, according to the hour dinged off by his alarm clock, for discovery? Therefore we, too, are on the prow as it were; while as it is, we are in a cozy corner of the gentleman's saloon, which is less chilly and wobbly than the prow.

Some readers may think that this whole figure of a voyage of discovery is rather far fetched, and we hasten to claim that it is not original with us. In his excellent speech at the New York banquet mentioned in our last issue, the new Secretary of Agriculture, David F. Houston, said this:

"We are really returning the visit of Columbus. I don't think I am wrong in saying that there are many of our people who are either not aware of the existence of Europe or have very distorted notions about it. We thought ourselves the light of the world, but we are now coming to realize that we can get a little light from other countries."

As we are then chartered as discoverers in the likeness of Columbus, we should feel the thrill of discovery and as thrills are modernly believed to be more rational and profound when reached by the scientific route of induction and not by impulse, we evidently need training in the art of discovery as a proper basis for the thrills thereof. Let us, then, rehearse the fact, so that we may not be tyros when we enter upon the actual work of discovery abroad, by endeavoring to catch the spirit of the proceedings of which we gave an outline last week—thus the better to understand them.

David Lubin as a World Power.

"Who is the leader of your California delegation?" said a bright Southern lady to us at the New York meeting.

"David Lubin, of course," we answered.

"Oh, no," she said quickly, "you cannot have Mr. Lubin, he belongs to all of us."

Thus it dawned upon us that David Lubin had become a world power and no longer provincial. A little later the same fact received more clear demonstration when there was uncovered at one of the meetings a giant loving-cup, large as a coal-senttle, but of more graceful form, silver without and gold within, bearing this inscription:

To
DAVID LUBIN,
American Delegate to the International
Institute of Agriculture, Rome Italy.
From the American Commission, Assembled by the Southern Commercial Congress.
In recognition of his services to the American People, May, 1913.

The token was formally accepted by the American Commissioners as fitly expressive of their estimate of the public services of Mr. Lubin and will be presented to him with fitting ceremonies after arrival in Italy.

The Politics of It.

The present national movement for formation of agricultural co-operation and rural credit is full to the chin of politics. It is pushed by all parties because none dare leave to the others the credit for the pushing. This fact is evidence of the voting powers of farmers, of which each party is trying to capture more than the others. This fact explains why it is now going so fast and why so many non-agricultural people favor it. It was discovered by Roosevelt, inherited by Taft and well cared for, and now is being vigorously advanced by Wilson, for it was well planked in his platform as it was in the platforms on which his competitors ran last November. No one can blame the politicians for laying strong hold on a good thing; on the other hand, it is well to rejoice that things for which agricultural organizations in this country have been contending for for half a century has at last arrived. Still there is a humorous side to it to one who remembers how the politicians used to hoodwink the farmers—honeying them before election and dosing them with vinegar afterward. Now they declare on their lives they will not do this, but will hang on right to the end. For instance, at the New York banquet William J. Bryan, Secretary of State, sent a telegram regretting his absence, in these words:

"To secure for the tillers of the soil a better control over the marketing of their produce; to provide for them the powerful auxiliary of credit; to increase the production of food, and to undertake, through lowering the cost of that production, the great and truly Democratic task of lightening the burden of the consumers of the country from the high cost of living, is a work worthy of the best efforts of the able men enrolled with the American Commission. The undertaking in which the commission is engaged has always had and will continue to have, at least during my tenure of office, the hearty support of the Department of State."

Some of the New York journals print the word democratic with a small "d," others use a very large "D," as we print it above—presuming this to be the authorized version. It is clear enough that in its leading parts the outfit is Democratic and it will be interesting to see later what will be claimed for it along that political line.

The Patriotism of It.

Surely politics and patriotism ought to be synonymous and can it be that the Democrats are destined to lead us into that beatific condition of public affairs. Truly their professions are that way. One thing is clear at the moment, viz: that the farmers' prosperity is recognized as the foundation of the nation's prosperity, and all the people are expecting to reach much higher levels of comfort and happiness through the advancement of agriculture along lines of greater business success. This view was forcibly set forth by Senator Fletcher of Florida at the banquet, as follows:

"No proper financial system should make the greatest asset of a nation, its real estate, contraband as security. The greatest industry of the nation, agriculture, ought not to be the least organized to take care of its interest and to successfully meet conditions as they arise, as may be necessary to preserve its well being and promote its prosperity. The older countries, obliged to meet difficulties, which surely confront us, have solved important problems to the wonderful improvement of agricultural and rural conditions here, and we can learn from their experience and apply the results of our research in a way that

will bring immense, epoch-making benefits to our country. The co-operative principle is 'one for all and all for one.' The first thing to be done is to establish a wise system of organization on a co-operative basis along all lines."

Senators Fletcher of Florida and Gore of Oklahoma are members of the United States branch of the commission, but could not sail with it because President Wilson needs them in his tariff business just now, as he seems to be a little shy of strength in the Senate. Our emphatic assurance to these senators that California would not care if they went aboard ship and did not revise the tariff at all, did not shake them in their determination to save the country in that way. And so we go loaded with patriotism, leaving behind those who are loaded with patriotism also, and as we have a volunteer choir daily rehearsing Dixie and the Star Spangled Banner, we shall probably startle sleepy Europe with our aggressive Americanism. It is freely stated that the United States never sent out such a bunch before with full diplomatic accrediting, and it remains to be seen what the foreign courts will do with it.

The Activity of It.

The self-consciousness of the Commission is fierce, but its conscience is as tender as a wild flower. It knows its duty and proposes to do it if the Atlantic will only keep quiet enough. In all parts of the ship commissioners can be seen interviewing everyone from captain to deck-hand as to their convictions and experiences in co-operation as an uplifting force and as favorable responses are clearly appreciated, the ship's crew are dispensing wonderful sea tales in this line. Passengers not of official quality are also cheering the investigators with remarkable experiences in the places whence they came. From some of the conversations which we have chanced to overhear we fear that some of the enquirers' note books are in danger of spontaneous combustion from the heat of enthusiasm which they enclose.

But, aside from individual activities of this sort, the Commission as a whole is surely making a most conscientious effort to do its full duty. We have attended five meetings in a single day, and are not sure that we found them all. The central effort is to organize the Commission in such a way that those interested in the same branches of the subject shall be closely associated without interfering with the right of each one to participate in other branches also. This gives to each branch a concentration of particular interest in its leadership and a following of those who wish to know something about all phases. To this end the Commission has resolved itself into four main groups as follows:

Branch 1 on rural co-operative and non-co-operative finance;

Branch 2 on production as influenced by co-operative finance;

Branch 3 on distribution as influenced by co-operative finance;

Branch 4 on official, semi-official and voluntary bodies for promoting organization of agriculture and country life.

Each of these groups has its own officers and assistants and is spending long days in discussions of questions to which answer will be requested from the co-operating Europeans. By the time the Commission lands in Italy all this inquisitorial machinery will be installed and well oiled, and unless there happen to be some local ordinances against the third degree the Europeans will surely have to come through.

Testing the Machinery.

It is being demonstrated on the ship that people of ordinary strength of nerve and physical functions can survive the operation. This is being done by placing members of the Commission on

the stand and turning the official inquisitors loose upon them. It is proving to be an excellent exercise in ascertaining how much a person really does not know about subjects which are perfectly familiar to him. For instance, it is interesting to see how many ways producers can co-operate without being guilty of "pure co-operation" at all. But it is an excellent educational exercise and the European co-operators will doubtless emerge from the ordeal which awaits them, wiser and better men if they do desperately consign the whole process to perdition and call upon the catacombs to conceal them from this twentieth century inquisition.

What Californians Are Doing.

The California delegation is outweighed only by that from Texas, of which one delegate is so large that he had to perch upon the arms of his chair at meals until the steward found a receptacle for him of adequate basic dimensions. But what the Californians lose in weight they atone for by activity. Col. Weinstock is in almost continuous session as vice-president, for the executive officers constitute the motive power of the Commission. Clarence Smith, delegate of the San Francisco Chamber of Commerce, is one of the vice-presidents of Branch 1, as noted above. Mr. Churchill of Napa, delegate appointed by Congressman Kahn, is the social leader of the California delegation and does not hesitate, as duty calls him, to bestow attention upon other than California ladies. This writer is the California representative upon the Executive Board of the association organized in New York. President Jordan of Stanford, included in the list of delegates previously published, is not on this ship and is supposed to be already in Europe preparing to suitably welcome the arrival of this outfit of American argonauts.

Queries and Replies.

Querists must submit full names and addresses.

Rabbits and Muskmelons.

To the Editor: I am troubled a great deal by rabbits eating off the muskmelon vines as soon as they appear above the ground. Is there any poison I can use to protect them? Can I spray the small plants with any chemical to keep the rabbits away? Can you tell me where I can get seed of the feijoa?—R. J. R., Fair Oaks.

Your only protection will be by rabbit-proof fences. Paris green or lead arsenate would poison the rabbits if it were not for the fact that the vines grow so rapidly that there would soon be an abundance of new shoots on which there would be no poison. You might try poisoned grain as described in a recent issue of the Press. That is your only chance outside of good fences.

Root Examination Needed.

To the Editor: I am sending you some cuttings of a pear tree that I am afraid has blight, so if you will kindly inform me, either through your paper or by mail, what the trouble is, you will confer a favor upon a subscriber.—F. M. S., Gilroy.

This is not pear blight, nor apparently any definite disease or injury from insect pest. There is every reason, when trouble develops without apparent cause on leaves or branches, that it is due to bad soil or weather conditions. In your case would say that the probability is that the soil is too dry, or the woolly aphis is playing hob with the roots, or that there is crown gall, the latter probability being small. Dig down around the roots and after investigation we will very likely be able to tell you more, or better say, you will evidently find the reason yourself.

Frost Fighting Activity.

[Written for the PACIFIC RURAL PRESS by
J. E. ADAMSON, Pomona.]

The large attendance at the demonstration of frost-fighting devices at Pomona on Saturday, May 17th, is a good indication of the deep interest taken in the problem of protection from frost damage.

The demonstration was scheduled for the evening, to escape the time of strong winds during the day, as there is not to be found the best chance for observation during winds. The afternoon was taken up with a meeting of growers, held in the packing-house of the Pomona Fruit Growers' Exchange. The attendance was not only large, but was representative of a good part of the citrus belt, as growers were there from many different districts.

The meeting was designed to be somewhat informal, so as to bring out individual opinion on the various phases of the work of frost-fighting.

F. P. Firey acted as chairman, and after a short address of welcome, succeeded in bringing out considerable discussion. The best methods of handling oil in the orchard was the principal subject. It was proposed to have some future work done along the line of pipe-lines to supply oil to the individual heaters, in a small continuous stream. This brought out some criticism as to the ability to carry enough oil through pipes of small size, but E. L. Koethen, of Riverside, gave a little history of a somewhat similar installation in Riverside several years ago, which worked well so far as oil-supply went, but was faulty as to burners.

Considerable difference of opinion was developed in the matter of the best kind of oil to use. Some were of the opinion that light oils were the best, but the fact developed that there was a decided limit to the production of light oil.

A committee of five had been appointed to arrange the details of the demonstration, and at the suggestion of one of the members, four members from outside points were added to those named from Pomona. This committee of nine had full charge of the conduct of the heater demonstration, and issued the following rules, and after it was over made a report which is given below:

RULES.

1. Each demonstrator will be required to burn two grades of oil. No other oil will be allowed in enclosure. One grade will be 28 gravity, less than 6% pitch. The other to be standard 18 gravity fuel oil purchased from the Pomona Valley Ice Company.
2. Each demonstrator will be allowed to use not to exceed six pots. One-half filled with each kind of oil. Pots to be filled full.
3. Heaters to be lighted at 6 p.m.
4. Will allow regulation of heaters every two hours; otherwise demonstrators and others must stay out of enclosure. Five minutes will be allowed for regulation of heaters.
5. All heaters will burn until out and be weighed to determine residuum.

Ten types of pots were entered, one of which withdrew during the evening. One other had only

one heater, and one was disqualified for infraction of rules.

The results seem to show that the question of oil is a matter for the grower to settle on the basis of economy of operation, comparison being made of the final residue and time of burning.

COMMITTEE IN CHARGE.

J. E. Adamson, Pomona; J. W. Mashmeyer, Pomona; F. E. Adams, Pomona; E. T. Keiser, Pomona; H. E. Walcott, Pomona; F. K. Adams, Narod; F. H. Roberts, Corona; Everitt Henry, Upland; B. K. Marvin, Riverside.

There was no effort to assume the rôle of judges, that being left to the interested ones in attendance. The rules worked out well, as the enclosure was kept free from the crowd, and there was no confusion caused from the frequent tampering with the heaters, by the crowd or by the demonstrators.

Some little stir was on in the morning among the agents for the various heaters over the way in which one of their number had overstepped the rules and opened his heater to try for a cleaner burning out of residue. The matter was settled by the committee ruling out the heaters which had been tampered with.

One of the principal points brought out by the day's work was that while light oils, with a low content of asphaltum, are desirable in many ways, it is entirely feasible to burn the heavy grades if the heater is made to have draft enough to burn out the residue. The smoke with the heavy oil is rather less than with the light oil, and the heat developed is greater, but more care is needed to secure good results.

MILDEW ON APPLE—POMACE AS FERTILIZER.

To the Editor: I am enclosing a few leaves taken from some apple trees which were set out this year; they seemed to be doing extra well until the last few days, when I noticed about 20 of the trees affected in this manner. I have them whitewashed and covered with the perforated covers, too. Will you kindly ascertain for me what the trouble is, also what spray to use, and proportion for 500 trees? I have taken out a few borers, but only a very few. Also please advise me if there is any value in grape pomace as a fertilizer for apple, prune, and pear trees. The strawberry plants are doing fine.—T. J. C., Healdsburg.

The leaves seem to have been attacked by powdery mildew, though we could feel more certain if you had sent down some twigs. If the new shoots are covered with a white powder, that will evidently be the trouble. There has been a good deal of it in the north of bay counties this year. You will find directions for a sulphide spray in the PRESS of May 17, though it is probably too late in the season to get very good results from it. For 500 small trees, you would need about 50 or 60 gallons.

There is a good value to grape pomace as a fertilizer for fruit trees. Grape pomace contains

(fresh) about 12.6 pounds of potash per ton, 2.80 pounds of phosphoric acid, and 19.1 pounds of nitrogen, having a total value, based on the price of commercial fertilizers, of about \$3.75, and fermented or pressed pomace in proportion to the amount of water lost or gained. These plant foods are not in as available form for plant use as the same amount in commercial fertilizers, but there is in addition a good value from the vegetable substance as a maker of humus and to put life in the soil, so that the total fertilizing value is probably quite a little more than the above figure. If you intend to use the pomace fresh, you had better mix a good deal of lime with it to neutralize any acidity that would develop, but probably the best way to use it as a fertilizer is to feed it to the hogs with other food and put the manure in the orchard. Then you will get a double use of it.

THE DESICCATION OF VEGETABLES.

[Written for the PACIFIC RURAL PRESS by
MARSDEN MANSON.]

California is so far removed from great centers of population, which require large amounts of imported foods, that we have need for all processes of conserving and condensing our excessive production. Canning has grown into a valuable industry with us and our products are being used in all civilized countries. But we still import German desiccated vegetables; one California firm alone handling several thousand dollars worth per year.

In outfitting for mountain or Alaskan trips, I have had occasion to use these to save cost of transportation. In many cases these desiccated vegetables are tasteless or have lost their flavor to a marked degree. The heavy losses in the potato crop in this State and Oregon again emphasized the necessity of making this great food available in tropical and severely cold climates to a far greater extent than is now done.

Some years since, with the help of very capable and efficient assistants, I tested out several methods of desiccating on a large number of our vegetables. The result is a very decided improvement on existing processes and gives superior desiccated products in which the flavor is unimpaired, the tenderness preserved and the products readily cooked without any waste whatever in quite a number of ways.

Samples of the desiccated tomatoes and potatoes have been kept unimpaired in the open air for several years. In closed tins or boxes lined with paraffined paper they keep for years without the slightest deterioration, regardless of temperature. The vegetables to which the process is readily applicable are: Irish and sweet potatoes, tomatoes, parsnips, Hubbard squash, rutabagas, turnips, salsify, red onions, green peas and beans of all kinds; but these latter are available dry and hence are not desirable desiccated.

Those to which the process has not been found applicable are: Carrots, summer squash, yellow onions, beets and white turnips.

It will be seen that the wide scope of vegetables to which the improved process is applicable will permit keeping the manufacturing plant in continuous operation throughout the year and not be idle as are the plants putting up our great products, as canned tomatoes and asparagus.

The demand for desiccated vegetables is growing rapidly, the armies and navies of both this country and Great Britain require them for both tropical and cold temperatures. Travelers and miners use large quantities of the German products, despite their lack of flavor and high cost.

With well-prepared products under the improved process, the use will extend to the home, where economy of time in cooking without waste is essential.

Preparing and desiccating the plants are not costly, and their simplicity of principle and operation admits of being put up near or in the areas of production, thus doing away with the cost of sacks, boxes, etc. The concentration of the product to the lightest bulk and weight saves from 75 to 80 per cent of the present cost of packing and transportation.

Name of heater.	No. of Space.	Weight of fuel oil in heater.		Weight of 28 gravity oil in heater.		Weight after burning.	Lighted.	Went out.	Hours burned.	
		lb. oz.	lb. oz.	lb. oz.	lb. oz.				h.	m.
Canco	0	..	..	20	..	.. 6	6 p.m.	4:20 a.m.	10	20
Canco	0	21	..	..	..	.. 8	"	2:55 a.m.	8	55
Canco	0	24	6	..	..	1 14	"	4:45 a.m.	10	45
Dunn	1	..	..	38	4	.. 10	"	8:30 a.m.	14	30
Citrus	3	..	..	44	8	4 2	"	8:55 a.m.	14	55
Citrus	3	45	4	..	..	20 8	"	5:50 a.m.	11	50
Schue	4	..	..	37	..	6 8	"	4:45 a.m.	10	45
Schue	4	45	..	..	..	27 8	"	10:55 p.m.	4	55
Hvlo	4	45	..	..	..	17 ..	"	4:45 a.m.	10	45
Guiberson	5	..	..	42	4	1 6	"	1:25 a.m.	7	25
Guiberson	5	39	12	..	..	7 4	"	11:05 p.m.	5	5
Coe	6	..	..	30	8	.. 4	"	1:25 a.m.	7	25
Coe	6	32	8	..	..	5 8	"	4:10 a.m.	10	10
Hamilton	10	..	..	36	14	.. 2	"	2:30 a.m.	8	30
Hamilton	10	25	..	..	..	4 8	"	1:45 a.m.	7	45

NOTE.—No regulation being made after 12 p.m., several of the heaters that were filled with the fuel oil had considerable residue left. The Citrus and Coe heaters that contained the 28 gravity oil were not regulated after lighting.

Confidence in Tomatoes.

[Written for the PACIFIC RURAL PRESS by
R. E. HODGES, Santa Rosa.]

Two hundred acres of tomatoes on one farm would seem to be inviting disaster in the form of disease, insects, frost, or bad markets; yet such is the confidence of F. H. Williams of Alameda county in their profitableness, after years of experience, that of the 400-acre ranch he is now working, 200 acres are in tomatoes.

Marketing the crop has especially engaged Mr. Williams' attention. Unlike many of his neighbors, who made early contracts last year for the sale of their tomatoes at \$8 per ton, he relied on his own judgment and sold the crop when ripe at \$15 per ton.

About 90% are sold locally to the California Fruit Cannery Association for canned goods, and to the Pacific Preserving Co. for ketchup, chowchow, pickles, etc. The other 10% are sold on the San Francisco market, last year at 50 cents to \$1 per box. The fruits and other vegetables which he sells in the city give him occasion to be on the markets personally almost every day, keeping himself posted on the condition of his produce on arrival as well as the general condition of the market.

When I visited Mr. Williams the last of April, a dozen of his Portuguese men were just finishing the planting. Every plant had a piece of newspaper wrapped around it with the roots and top sticking out. He explained that fourteen years ago a little black beetle appeared in the fields in hordes. Especially on hot days the ground seemed to be alive with them and they ate off the plants clean. All means failed to check the pests, and for a few seasons the whole tomato industry in that section was threatened with entire destruction.

Then, in the face of much ridicule, Mr. Williams put some girls and men at work wrapping six-inch squares of newspaper around his tomato plants before setting them out.

When the insects came to these, they were fooled, and just kept on traveling to the laughing neighbors' fields and cleaned them out.

From that time till now, although the pest is not so serious, almost everyone uses the newspaper protection. One who set five acres this spring without newspapers, lost all of them in two weeks. Because of other dangers to the plants, Mr. Williams raises twice as many as are needed to plant the 200 acres. Till the last of April there is likely to be frost. During midday many young plants die from sunburn. Cutworms, while not numerous are very wise, and sometimes make their nests within the paper wrap, eating off the young plant. A few years ago a large number of old vines were lost by cutworms boring into the stalks; but this happened only once.

"The tomato has more discouragements than any other plant I know of," said he, showing me the cold-frames where about 500,000 plants are raised per year. "I need only a few more than 200,000 for the first planting, but I need a lot for emergencies. We often have to go over the fields three times to replant those that have died. One year I used as many the last two times as I did the first."

There are seventeen frames, 40x6 feet, 2 feet high along one side and 14 inches high on the other. There are twelve frames 60x6, giving a total space of 8400 square feet. This is all covered with three thicknesses of heavy muslin or drilling cloth, which may be rolled up on a stick to which it is tacked.

The soil in these beds is prepared by mixing it with rotted manure. No hotbeds are used. Planting is done at intervals from January 15 till March. Trophy is used almost entirely, though a few Earliana and Stone are planted for early and late markets.

Two or three weeks before planting time the muslin is rolled from over the plants for an hour when the sun is not too hot. The time is increased daily until they can stand the sun all day. Tempering to the cold at night is done the same way. Should a frosty night occur while the plants are exposed, woe is to the manager. One night late in April this year, Mr. Williams thought one

thickness of cloth would protect them, only to find several thousand blackened next morning.

At planting time, they are taken out in boxes to the wrapping shed where the newspapers are put on. I timed a Japanese when he did not know it. He was moving like clockwork, wrapping ten plants every two minutes. A Chinaman cut the paper for five men to wrap with.

Out in the field where a dozen men were finishing the planting, one was kept busy supplying the others with plants and water. The equipment of each man consisted of a small hoe with a handle two feet long, a box with a basket handle in which to carry the plants, and a bucketful of water. The land had been marked and crossed in shallow trenches intersecting seven feet apart for the canning tomatoes and six feet apart for those to be sold on the market.

At each intersection a man would dig a hole with his hoe, place the plant, rake some dirt in, pour on a dipperful of water, and cover with dry dirt. No shade is put over them.

Cultivation consists in going over the field once with a team and weed cutter, a long knife fastened to a pair of wheels so that it cuts horizontally just beneath the surface of the ground. After the horse cultivation, each plant is hoed by hand and hilled up. The plants spread out and the fruit rests on the ground. This is all right in Alameda county, for the ground is dry and does not get hot enough to scald the tomatoes.

At ripening, the canning and preserving tomatoes, which comprise 90% of those grown on Mr. Williams' farm, are picked loosely into handy lug boxes weighing about fourty pounds, and are hauled directly to the factory. The first to ripen are the most desirable for canning and for ketchup, on account of their superior color.

Market tomatoes are carefully selected for uniformity of size, shape, and ripeness. They are packed tightly in regular boxes and shipped to commission men in San Francisco.

Late in November frost gets the vines, and the season is over, for the frosted fruit would spoil if canned. Then within a few weeks, buyers are scouring the country to contract next season's crop. For three or four years the canneries and ketchup factories have used all they could get either by contracting ahead or buying when ripe. Last season their stock was cleaned out before the end of April, and most of those who would contract this year's crop had done so before the end of January.

QUESTIONS ON PLANT THRIFT.

To the Editor: Peas and sweet peas do not grow continuously in the same ground. I know this practically in my experience, but in no book have I ever found why they do not grow. Please give me a scientific reason for this.

When the Cycas revoluta (sago palm) shows signs of weakness, driving nails into the stem is said to give courage to the tree. Is this true? I have heard this from several persons and am anxious to put it into practice. My plant is in an urn which seems to me to be full of roots. Do you think it well for it to be put out in the ground?—H. O., San Carlos.

There are two very good reasons why some classes of plants cannot be grown continuously in the same piece of ground. One is the depletion of available food of some certain type, the other the formation of injurious compounds by the plants, or the gradual increase of fungoid, bacterial or animate pests in the soil, which finally become abundant enough to seriously hinder growth. For the first of these it is generally known that different plants have their own method of feeding; they take the plant foods, as nitrogen, lime, potash, phosphates, etc., in different proportion. More important, perhaps, is the fact that the root acids that extract these foods are of different types and strength. Thus before many seasons it may happen that most of the plant food of one or more kinds may be nearly

exhausted as far as that kind of plant is concerned that has grown there continually, while there would be plenty of easily available food for plants with a different kind of root system and different root acids, etc. This is one reason why rotation of crops is so good; it gives a combination of root acids and root systems to the soil during a term of years, and it also gives the soil a rest from one certain kind of attack for a season at least. Of course, some plants are more susceptible to injury than others by staying long in one location, and some plants can be grown year after year in the same place with little trouble from lack of plant food or from the accumulation of injurious products in the soil. The latter is a very important point. The waste products of nearly every form of life, animal or vegetable, seem very nearly always to be poisonous or injurious to such kind of life. With plants, especially of low order of development, these waste products are largely the acids or other material sent out from the roots, if they have roots. A rotation permits such material to be dissipated by the time the crop is planted a second time. Naturally, some kinds of vegetation are more subject to injury in this way than others. As a general thing, even more important than the two preceding factors is the increase in pests or diseases. There are lots of these, a large part of which might be of such minor importance that their existence can be practically ignored. Many such pests, which include forms of animal life much less developed than insects, and fungi, bacteria, etc., attack only certain kinds of plants. Thus when the land is given over to crops unsuitable to them, they perish from lack of support. Contrarywise, when the same crop grows on a piece of land year after year they can increase in number until finally they are in sufficient quantity to seriously affect growth. These are the three reasons why some kinds of plants do not thrive if grown continuously in the same place and will probably provide you with the explanation you desire. Off-hand, we would say that the trouble with the peas comes in the accumulation of pests in the soil, but just now we would not state what these are. Nitrogen-gathering plants, like peas, clovers, etc., occasionally gather too much nitrogen for their own thrift when grown in one location year after year, and need a rotation to overcome some of this surplus fertility, but that is not usually the case with peas as you inquire about.

Rarely it happens that the supplying of iron to trees by driving in nails is a benefit, and almost never would only one or two do any harm. Still, the probability is overwhelmingly against the mere lack of iron that could be supplied by driving in nails. It is more likely to be in bad soil or moisture conditions, the partial exhaustion of plant food, the filling of a pot with roots (with potted plants), or some such cause.

BEAN BLIGHT.

To the Editor: What is the best remedy for bean blight? Would the Bordeaux spray used for potato blight help?—A. C. K., Fallon.

More details will have to be given in this matter. We are not familiar with any blight of the bean. There is a mildew which occurs in moist weather which can be controlled by sprinkling with dry sulphur; also a rust, which seldom does any damage on plants on good soil and given good growing conditions; also a bean spot, which causes large, scabby, dead spots upon the pods. It is not often serious in this State and may be controlled by selecting clean seed and spraying the plants with bordeaux mixture. This last is probably what your trouble is.

Raisin Handling in Spain.

California is the greatest raisin country in the world. Nevertheless Spanish raisins have great importance to us on account of Spain growing about the same kind of a raisin as we do and to a certain extent competing with us. The methods of handling are therefore of interest as showing us what we have to compete with in addition to the natural interest one naturally has for a person or country in the same kind of occupation as we are. This account is taken from a consular report, made by Consul Claude I. Dawson, Valencia, Spain. He states:

"The Valencia raisin enjoys a wide reputation in the European markets as a splendid fruit for use in pastries, puddings, and in cooking generally, while the raisin of the Malaga district (which is the classical raisin country) is used more extensively as a table delicacy. In the southern part of the Valencia district, however—notably around Alicante and Murcia and sometimes in the vicinity of the large shipping port of Denia—the method of curing is to a limited extent the same that is universally employed in the Malaga district, i. e., solar heat is used, with no previous preparation of the fruit, the sun's energy being tempered by a medium dry wind so necessary to obtain the proper degree of evaporation without extracting too much moisture.

"The common method of curing the Valencia raisin, however, is by the alkaline scalding of the fresh grape immediately after it is cut from the vine, and subsequent exposure to the heat—solar when the sun's rays are strong enough and atmospheric conditions are favorable, and artificial when the process cannot be completed by the first method. Scalding promotes desiccation and imparts to the cured raisin a pungent taste, which is very acceptable to the consumer. The two methods of curing give rise to the commercial nomenclature of pasas de sol (sun-cured raisins) and pasas de legia (scalded raisins). Whatever the process used the fresh grape loses 75 to 80 per cent of moisture, so that 100 pounds of grapes will yield 20 to 25 pounds of raisins.

GATHERING AND SCALDING GRAPES. The grape best suited for curing, and practically the only one cultivated expressly for that purpose, is the famous Muscat variety. At maturity early in August—in some districts not until early in September—the grape takes on a yellowish tinge which under the scalding process turns to a dark color through the action of the alkali on the vegetable coloring matter. The bunches are cut from the vine with ordinary scissors and carried at once to the scalding vat in flexible woven baskets made of esparto grass lined with cloth as protection from bruising. From these baskets they are transferred to large sieves which are immersed in a boiling alkali mixture called legia (lye) until the grape shows an almost imperceptible cracking of the skin, the operation consuming 15 to 20 seconds.

"This lye treatment calls for some skill on the part of the operator, the duration of the immersion depending on the strength of the mixture and the condition of the fruit. To avoid serious loss small quantities of grapes are experimented with before the bulk of the fruit is scalded.

"The legia, or lye, is prepared according to two different formulas. One consists of a solution of commercial soda registering 3 degrees to 4 degrees Baume, and the other, which is the one most commonly used, is made from the ashes of dead grapevine shoots and mountain wood mixed with rough lime, the concoction requiring much skill.

tion requiring much skill.

"A second-grade legia forms the basis of the preparation for scalding the grapes. It is poured into a large vat (caldera) containing boiling water. If the resulting mixture is too weak it is strengthened with the "flor de legia," and if too strong it is diluted with water. When the solution is thought to be of the proper consistency it is tested with small quantities of fresh grapes, and if it is found satisfactory the scalding is proceeded with in the manner described.

"DRYING PROCESSES. Desiccation follows the scalding process, the evaporation of moisture being obtained in the same manner as with raisins cured entirely by solar heat, i. e., by exposure to the direct rays of the sun for a period of three or four days—which is usually sufficient—the bunches being occasionally turned over to allow even drying. At night the fruit is protected from the dew and possible rain by canvas sheets, which also serve to retain the heat absorbed during the day and thus allow evaporation to continue without interruption.

"When dampness or a cloudy sky prevents curing by the sun's rays resort is had to artificial heat. For this purpose stoves are used to heat a room or a large oven to a temperature of 35 degrees or 40 degrees C., and the grapes spread on "canizas" are placed therein. They receive the same care and treatment as when exposed to the sun, except that the canvas covering is not required and the "canizas" are moved to different positions in the room so as to insure that every bunch shall receive the extremes of heat. Increasing uncertainty as to the weather has of late years tended to extend the use of artificial methods, so that at present, especially in the Denia raisin country, a large number of stoves and ovens are in use; and although the process requires 8 to 10 days, as against 3 to 4 days by the solar method, growers are more and more resorting to it.

"SULPHURIZING AND ITS EFFECTS. A development of the artificial curing of raisins (and probably itself a big incentive to the more extended use of that method) is the chemical mode of decolorization or bleaching and preservation by the sulphur treatment. When this process is rationally employed there is no detriment to the health of the consumer, while the keeping quality and appearance of the raisin are greatly enhanced. A receptacle containing burning sulphur is inserted in the pipe or tube which conducts heat from the stove to the room or oven, and in this manner the sulphur fumes are forced into the room with the air and circulate among the grapes undergoing desiccation. The chemical action of the sulphur tends to heal the cracks in the skin produced by the alkali bath, disinfects the fruit, and destroys any micro-organisms resulting from possible fermentation of the raisins, without extracting an excess of humidity; and by its action on the vegetable coloring matter in the grape leaves the raisin with a beautiful golden hue and emphasizes the sweet aromatic taste and odor characteristic of the muscat grape. Subsequent exposure of the fruit to the sun for two or three days eliminates all trace of the sulphurous agent, leaving no perceptible taste or smell.

"PRICES AND PROFITS. The prices obtained for Valencia raisins by the grower vary considerably, first according to a system of grading in bulk when purchased by the packer in the field, and second, according to the advancement of the season.

"The opening price for ordinary fruit on the stalk generally ranges from \$4.50 to \$4.75 for 110 pounds or from 4.09 cents

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to 4.31 cents per pound. The grades quoted in a trade paper in the Denia raisin district are (1) ordinary on the stalk, (2) good on the stalk, (3) superior on the stalk, (4) very selected, (5) ordinary selected, (6) good selected, (7) superior selected, (8) flower. The quotations at the beginning of the season range from the figures already stated to as high as \$9 for 110 pounds or at the rate of 8.18 cents a pound for the "flor" or best quality of fruit.

"Under the impulse of such prices and the approaching holiday season (the raisin season opens the latter part of August or the first of September), a large part of the crop is thrown on the market. As the season advances and the importers in the principal price-governing markets (London and Liverpool) become well stocked, prices decline and the trade is inactive; but the supplies remaining in the hands of growers are also correspondingly low.

It is said that a few years ago a farmer selling his raisin crop above \$3.15 per 220 pounds as an average was earning a profit; or, otherwise stated, it cost the grower that sum to cultivate, harvest, and cure that quantity of raisins. At present the dividing line between profit and loss is \$3.60 for 220 pounds of fruit. This gives an approximate cost per pound to the producer of 1.63 cents.

"PACKING THE RAISINS—GRADES. After the grapes have undergone the scalding-drying and sulphurizing process the resulting raisins—still on the stalk—are brought to warehouses and again aerated on canizas for two or three days at normal temperature. These warehouses are large, high-roofed buildings of masonry with numerous spacious doorways and windows. They are owned or leased by the packers, who usually are shippers as well.

"The first step in the preparation of raisins for the market is removing the central stalk, an operation as yet almost

universally performed by hand. Recently a machine was invented for the purpose by a native of the Denia district, but it has not yet been put to practical use. After being picked the raisins are spread on sorting tables and graded, and for the select classes the stalk and all but the best fruit are removed. The grading and picking are performed by women who receive from 1.40 to 1.60 pesetas for 50 kilos, or about 23 to 26 cents per 100 pounds. The quantity cleaned by each worker varies from 66 to 220 pounds per day.

"SANITARY CONDITIONS—WAGES. The packing of the fruit is carried on under good sanitary conditions without the enforcement of special precautions. The floors, mats, baskets, and utensils are used exclusively for the industry. The operatives, all women, present a clean and neat appearance, and while at work usually wear oversleeves. Men operatives do not handle the fruit at any stage of the industry.

"Packers receive 27 cents a day of 12 hours, the output of an experienced hand being approximately 30 boxes of 6¼ kilos each (equal to 412.5 pounds of raisins), or their equivalent in larger or smaller packages. As the season advances and the day grows perceptibly shorter the wage is reduced to 1.25 and finally to 1 peseta (22½ and 18 cents, respectively) per day. Male employees do the heavy work, such as transferring baskets of fruit to the women packers, nailing boxes together, and loading on carts. The foreman receives 72 cents a day and the clerk 54 cents; the ordinary workman gets 45 cents for a day of 12 hours, subject to reduction to 36 cents as the day grows shorter.

"In the packing of smaller sized boxes it is sometimes found expedient to pay by piecework on a wage scale of 7.2 cents to 14.4 cents per 110 pounds of fruit, according to the class and size of package.

"The cost of all labor expended in packing fruit ready for shipment, including picking and grading, is estimated at 36 cents per English hundredweight of 112 pounds.

"PROCEDURE IN PACKING FRUIT. The procedure of packing the fruit is very simple. The shooks are nailed together by male employees and placed before the women, who work on grass mats in a kneeling posture. The fruit, already graded and weighed into baskets, is brought and poured into the square boxes previously lined with the usual camisa and is pressed down with the hands. The full box is carried to the carpenter's table, where a woman maker stencils the shipper's trade-mark, and the carpenter nails down the lid and transfers it to the shipping platform.

"More attention is given to quarter and eighth square boxes than to the half box. These are "faced," the process consisting of placing the best-appearing raisins in the lot neatly and compactly at the top of the box so as to set the entire lot off to advantage when exposed to view in the market. For this purpose packers use a wooden hand press—a plank cut to the size of the box, with a handle on the upper surface.

"Layer boxes are used for selected grades of raisins, consequently they receive more care in packing and more elaborate and attractive finish. All sizes of layer boxes are "faced" in the manner described. In the half box each of the first three layers, and in the quarter box the first layer, are separately packed in a paper lining, camisa, and the top layer in every case with a combined camisa and cromó (chromo), with extended fringe or lace edges which are folded over. The whole is surmounted by vignettes (vine-tas), photogravures, etc. The boxes are then sealed, stenciled, and carted off to be shipped."



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WHAT THE WEST SACRAMENTO IS DOING.

(Continued From Page 609.)

LAND AS IMPROVED.—That is about the land as nature prepared it. One reason it was not reclaimed was the great size and extent of the property. The basin was also considered necessary as a kind of safety valve in flood times for land protected by levees and for Sacramento. While the river is enclosed by levees, it is too much to expect in time of floods that all the water should be carried in the channel. There were openings into the Yolo basin,—so that the water would have a chance to flow over these 80,000 acres or so in the basin, to later recede at leisure.

The West Sacramento project is protected by improved levees along the river. On the opposite side is a by-pass to take off surplus water from the river, and besides there remains the vast area of the rest of the basin to continue its storage of surplus water. Added to this is the fact that the mouth of the river is being widened so that the flood water can reach the bay much quicker than ever before and without backing up so much.

The dredges, by the way, that are used on the levees are remarkable. The suction dredge is said to be the largest in the world, and is the only dredge, in California at least, that is operated by electricity. The company also had a clam-shell dredge built, the largest in the world, and now the Government is having two others like it built, a compliment to its efficiency.

It may sound overdrawn to talk again about "the largest in the world," but if the two drainage pumps are equaled anywhere or approached in size, they are wonders. They were built in San Francisco and are 47 inches in diameter, op-

erated by electricity, with motors of 350 horse-power. There is also a third motor of equal capacity in reserve. They have a capacity of 100,000 gallons per minute, and if worked continuously at this capacity would supply enough water to irrigate the San Joaquin valley. Naturally, they will need to be operated together at capacity only at short intervals, if at all.

TRACT OPERATION.—The work of these pumps in the operation of the tract, once it is fully developed, is most interesting. Their main use will be to adjust the level of the water-table in the soil. Being so nearly level with the river, it can be seen that the water in the soil would, if not interfered with, be close to, if not even with the surface of the ground. To these pumps, which face on the by-pass, a drainage canal has been dug, which, with its branches, extends over a large part of the tract. There is under the whole tract a water-bearing strata from which the pump draws. By operating the pumps the water-table is thus drawn down, and it is clear that the water-table can thus be drawn down to give four to six feet of soil, as desired for plant growth. Thus the roots can get double the amount of plant food and make double the development that would be possible if mere drainage that might be accomplished with tiles were only practiced. Furthermore, the system can be used to provide water. Or, better, say by stopping the pumps in case of lack of rain, nature will provide water, as the nearness to the river and the underlying strata of water will make the water-table come up to moisten the earth, only to be pulled down by the pumps before roots or plant life has been injured.

A NEW CITY.—Every stage of operations of this tract carries with it such interesting features as that of the dredges, pumps and drainage. The part of the tract opposite Sacramento is laid out as a city. The firm of Hobart & Cheney, architects, was engaged to lay out this city from the standpoint of making a beautiful and artistically designed community, also to have the most expeditious conduct of business, to give the pleasantest community life, and to make, in brief, as attractive and convenient a place to live as is possible. That, of course, is hardly agriculture.

Through the tract is a concrete boulevard, very largely constructed now, probably the only one of any size in California through a country district. A number of test stretches of road were first established in the upper end to find the best combination of rock, sand and cement before work on the boulevard in its entirety was begun. This boulevard will be mainly for automobiles, as concrete is too hard on horses. Contrarywise, macadam roads adjoin the concrete, and as autos are too hard on macadam roads, these are protected from the autos by the concrete, and the autoists get good speeding and the teams have as good roads to travel over as the best roads were before automobiles were invented.

Another pleasant feature of the tract is Lake Washington, a natural lake three miles long, which has been made part of the drainage canal, and deepened and the sides straightened. The movement of the water in the canal and the depth of the lake keep the water pure and sweet and make a most excellent place for boating, swimming and fishing.

THE ROUGH WORK.—There has been some rough work in the development of the tract. Close to the river the land has been built higher than the tules by overflow and was covered by a dense growth of cottonwood. After these were cut away, four stump-pullers were operated constantly until recently, when two could be taken off, clearing the land. A part



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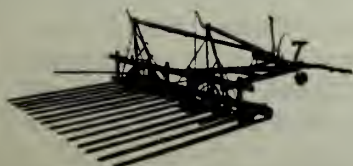
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of the land, however, was only partly cleared and has been left as a park.

In the tules, big wheel tractors with rollers or caterpillar engines crushed down the ten foot growth or so of tules. After these dried they were burned over. Then pairs of Fowler engines broke up the tules. These are the most powerful tractors used, and remain in place, first one and then the other pulling great plows to itself by cables, then moving on a few feet as the plows were making their way back to the other engine. Only a couple of pairs of these engines are used in California. They were used here on account of the extreme difficulty of breaking up tule ground.

The other great mechanical agencies for the aid of man in subduing nature can be seen busy and effective. Caterpillars are busy putting the plowed land in which the tule roots have been given a chance to decay into shape for beans or orchard planting, working in the sand on the levee or hauling loads for construction work here and there, and big wheel tractors doing their work.

The uses of such land need hardly be mentioned, as they can be seen on lands nearby. The finest, most productive and most profitable Bartlett pear orchards in the world are found in exactly this kind of land along the river, above and below. Close to the levees are frequently found unrivaled cherry orchards.

The nature of the soil and the rapid, cheap transportation by water to San Francisco make this a wonderfully fine truck gardening district. Nearly all of the cleared land was leased last fall for beans, which are just going in now. If it had been reserved and the dry season foreseen and barley planted instead, and that sold for hay, it would have paid amazing dividends if it had grown like that on the nursery and experimental grounds started in December, and the season would still be ample for beans, too. Some alfalfa planted this spring is making a beautiful growth, as alfalfa does on such land, never needing irrigation and the land needing no leveling. The soil right after reclamation has poor bacterial action and this alfalfa will do very much better in future years.

Suffice it to say that it is a most excellent pear and cherry district, a district fitted for truck farming and numerous other crops, and very desirable, through the productivity of alfalfa and corn and for the convenience of transportation to the bay cities, for dairying. Everything points to being a district of diversified profitable farms. The whole series of steps from the development from absolute unproductivity to the possibility of the highest productivity are of absorbing interest and of the greatest value to the State.

There are 11,500 acres in this tract, and the reclamation is such a success that a much larger acreage below the Netherlands is being reclaimed in just the same way by the same people, but under a different incorporation. The final condition of the Yolo basin when reclamation is complete will be that the rich lands extending several miles back from the river will be reclaimed by levees. The outer part will still be overflowed by high waters, but drainage canals will run through it and the water will run off as quickly as the river recedes, leaving a long summer season for the growth of rice or some profitable summer crop. Thus from the lands of the Solano Irrigated Farms Company near Suisun bay, up to Sacramento, the land near to the river will be in use all the year long and the land in the outer part of the basin will be enriched every year by the sediment deposited in the overflow and producing profitable crops at times when the season is most favorable for growth.

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Veterinary Questions and Answers.

BREEDING OLD COW.

To the Editor: I have a cow about ten years old, has been milking about five months, but have not been able to get her bred. What is the best medicine to give her and is there any tonic that I can feed her to tone her up? Also, how often does a cow at that age show signs of wanting to be bred?—C. D., Hughson.

ANSWER BY DR. EDWARD J. CREELY.

You do not state whether the cow refuses to take the bull, or if she fails to conceive after breeding. We presume, however, that the former condition (absence of estrum) prevails. This condition is generally due to ovarian cysts or atrophy of the ovaries. In an old cow neither of these conditions can be successfully treated.

In the normal cow estrum (heat) occurs with considerable regularity about every three weeks.

VETERINARY DENTIST NEEDED.

To the Editor: I have an old horse which has always been fat and quite full of life until right lately. Now he is getting thin and looks bad. He eats his food all right.

I had his teeth fixed a few weeks ago. The man said they were bad and he fixed them as well as he could. The horse don't have much work to do and nothing that is very hard. I feed a mash three times a day when at work and twice when not, the rest of the time he runs in pasture. (The mash is 3 pints of bran, 3 pints of midds, 3 pints of alfalfa meal moistened with water), and oat hay at night. Is that enough? It used to keep him fat. He seems lately to have some trouble in passing water. What can I give him that

may be put in the mash? I don't think his trouble is due all to old age, for it didn't come on gradually. Also please tell me if the poultry quotations in the PRESS are for live or dressed birds.—T. A. G., Mendocino.

ANSWERED BY DR. EDWARD J. CREELY.

This is an excessively long molar projecting into a cavity and the projecting molar should be cut off by a qualified veterinarian. The horse will begin to pick up and grow fat almost as soon as the condition is relieved. Most horse owners will permit every person with a float to ruin a horse's mouth without inquiring whether the dentist possesses proper qualifications (State License and Diploma.)

Gran. Sal Nitre, a tablespoonful daily in water is good to stimulate the kidneys.

Quotations for poultry in the PRESS are on the live weight basis. They correspond to the quotations by the dozen in other papers, but are more definite on account of being put this way.

IMPACTION OR RABIES.

To the Editor: I have had five milch cows running on alfalfa which is not watered and is getting somewhat dry. Three of those cows have died, and we can't just decide where the trouble is. They quit eating from four to six days before they die. A few hours before death occurs they are in intense pain, can't see, run around in a circle and bump into any thing in their path. I had a good veterinary in attendance and we performed a post mortem on two of them. The second stomach (reticulum) was terribly packed, food in it absolutely dry. The liver was soft, you could stick your finger right into it. There was a slight inflammation in the intestines. The last cow that died did not have the impaction so pronounced. Now, from what I have said, do you think it was the impaction that caused the trouble? Dairyman, Dixon.

ANSWER BY DR. EDWARD J. CREELY.

The second page of your letter, in which you might further describe the symptoms in the cows, was not enclosed in the envelope. Your letter, therefore, ended abruptly. However, as far as the description of the symptoms were given by you it might appear that the affection was due to impaction of the second stomach (reticulum), judging from the condition of same, and the nature of the feed. If this was the cause the administration of cathartics as soon as the animals exhibited signs of sickness would have been advisable. One to one and a half pounds of Glauber or Epsom salts in solution is an excellent cathartic for cows. The cows should also be given some succulent feed.

Rabies is now prevalent in the Sacramento Valley. Quite a few cows have been bitten by rabid dogs and have died from this affection. The State Veterinarian reports a number of such cases in and around Sacramento. Cows usually die within three to ten days after first symptoms appear. The fact that your cows showed symptoms of nervous derangement (running around in a circle, etc.) and the length of time they were sick, are suspicious.

UNTHRIFTY MARE, POULTRY BREEDS.

To the Editor: In the issue of the PACIFIC RURAL PRESS of May 3rd, I asked advice in regard to the condition of mare used on rural route. As advised, I examined her teeth and feces and find her teeth O. K., as I had a good dentist treat them a short time ago. There is no coarse food digested improperly. What prescrip-

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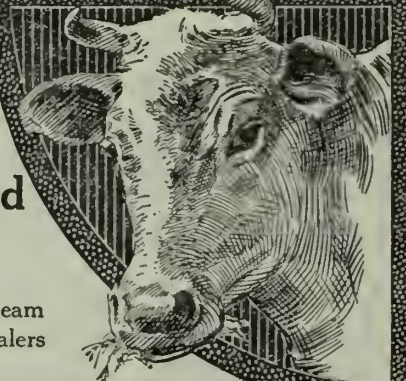
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tion do you recommend? I was advised to give condition powders, but her condition in regard to rough hair is the same. Also do you advise feeding on the road when a horse leaves the stable at 10 a. m., traveling continually for thirty

miles, returning 5:30 p. m., being fed at 7 a. m.?

I noted the article in answer to a subscriber from Tennessee in the issue of May 17, on "The Capital Needed for Farming." Would you object stating what

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ANOTHER LITTER from Queen Bertha 2nd, the famous Berkshire Sow. Three-month-old pigs may be secured if ordered at once. Dixon Estate Co., Wallace, Cal.

REGISTERED DUROC JERSEY SWINE—Some extra good young boars for sale, ready for service. Best Eastern strains. Ed. E. Johnson, Turlock, Cal.

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POLAND-CHINAS; large type. The Browning Stock Farm. W. H. Browning, Woodland, Cal.

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T. B. PURVINE offers for sale a few nice registered young Jersey bulls and bull calves out of fine cows. Petaluma, Cal. R. F. D. 4, Box 195.

GRADE SHORT-HORN DAIRY COWS FOR SALE, also a few registered Holstein bull calves. Apply A. Balfour, 350 California St., San Francisco.

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H. N. LOCKE CO., Lockeford, Cal.—Choice young Jersey bulls and bull calves from prize winners and producers.

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MINOR & THORNTON, Breeders of Reg. Holstein-Friesian cattle. Kearney Park P. O., Cal.

REGISTERED JERSEY CATTLE.—Young stock for sale. W. J. Hackett, Breeder, Ceres, Cal.

REGISTERED HOLSTEIN bull calves for sale. H. W. Hawkinson, Perris, Cal.

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SIMON-NEWMAN CO., Breeders of Registered Herefords. R. M. Dunlap, Manager, Newman, Cal.

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JERSEY CATTLE, DUROC JERSEY SWINE. Mossdale Farm. J. E. Thorp, Stockton, Cal.

SHEEP.

CHAS. KIMBLE, Breeder and Importer of Rambouillets. Hanford, Cal.

kind of fowls the party keeps which are mentioned as "choice laying hens?" I am thinking of a similar venture.—I think the PACIFIC RURAL PRESS is a very reliable and instructive journal and I like it very much.—Subscriber, San Joaquin County.

ANSWER BY DR. EDWARD J. CREELY.

"I do not believe in all condition powders, because a great majority of them contain resin and antimony. While a slight amount may be beneficial, continued use results in affection of the kidneys by over-stimulation. Give the following for indigestion:

"Bismuth Subnitrate, 1 ounce,
Powdered Peppine, 1 ounce,
Soda Bi Carbonate, 12 ounces,
Carbonate Iron, 2 ounces.

"Mix and give a heaping teaspoon twice daily. By all means feed your horse three times daily and water as often as you can. It is unnecessary to warn you that the horse must not be overheated when you give the noonday feed.

SAN FRANCISCO VETERINARY COLLEGE.

We would willingly state what variety of fowls Mr. Weeks keeps if we knew, but his address is given in the article referred to and he will surely be glad to inform you if you write and enclose postal or self addressed envelope. We will say, however, that on the far larger number of poultry establishments like those described, which are operated with small runs and on an egg basis, white Leghorns are the breed kept and it is doubtful if you could make a better selection than these or some other Leghorns or related breeds. If you have a general small farm and table fowls are desired, you may of course be better suited with fowls of other breeds. While on purely an egg basis, Leghorns or other light breeds evidently would be necessary for the best success, a very essential thing is to get the right fowls in the breed. That means training in judging in what fowls are doing their duty and in getting your chickens from the right place.

TO PICKLE BEEF.

To the Editor: Can you tell me through the columns of your paper how to pickle beef and veal so that it can be kept for several months.—H. W. H., Perris.

We sent this query over to the University, where it was answered by Prof. M. E. Jaffa as follows, taken from "The Modern Packing House" by Wilder:

"The following formula will be found to turn beef out in very nice shape and with a good color. This is for plate beef, rump butts, briskets, clods and all trimmings of a similar character: To 1,500 gallons of 100 degree strength pickle add 98 pounds saltpetre. It will be found necessary to dissolve the saltpetre before putting it into the pickle."

We presume that by 100 degree pickle is meant a solution of salt and water as can be prepared at ordinary temperatures. If less pickle is to be made, a little arithmetic will show how much saltpetre should be added.

SPRAY FOR FLIES.

To the Editor: Can you tell me what to use as a spray to kill the flies in my stable? In the early morning the ceiling and sides are thickly covered with the pests partly dormant but not enough so that they can be swept down and killed. What spray can I use that will destroy them?—G. B. L., Los Angeles.

As far as killing the flies by a contact spray is concerned, we do not think that there is any feasible way of doing this. You can, however, spray the sides and ceiling of the barn with a spray of epsom salts (sulphate of magnesia) using about a cupful to the gallon, which will pre-

vent them from gathering there. And since prevention is better than cure, flies can be kept from gathering around by destroying their breeding places, if those are under one's control, by having all manure and litter removed before the flies have a chance to develop.

FERTILIZATION OF ALFALFA.

To the Editor: Having noticed in your paper how clearly and exactly you answer the different queries, I would appreciate very much if you could give me a little information as to the following. I have 20 acres of alfalfa land which is very heavy soil, not the sandy kind. I manured it well this fall and it is coming up splendidly, but what I wish to know is which is considered the best fertilizer to produce heavy crops, gypsum or lime?—C. D. N., Hughson.

The best advice we would give you would be to try some gypsum, hydrated and air slaked lime on different plots. If your soil is fertile and giving good satisfaction, possibly neither would be necessary until there was some falling off in fertility. Gypsum as a rule gives greater stimulation than lime to the soil, but a person gets much more lime for his money in buying lime than gypsum, which is composed of lime, sulphuric acid and water. Also gypsum is greatly inferior to lime when the soil has any tendency to acidity. Both will have a decidedly good influence in loosening up heavy soil like yours, which would be the best we cannot say. Our inclination is somewhat in favor of hydrated or air slaked lime instead of gypsum, as it lasts longer and actually adds more plant food by a good margin than gypsum, but the only thing to do is to try all three leaving untreated alfalfa for comparison.

RYE FOR HAY.

To the Editor: When is the best time to cut rye for hay, and how should it best be handled? Would it be well to cut it up and blow it into the barn, and would it do all right for silage?—M. B., Stanislaus county.

Rye, on account of its woody stems had better be cut earlier than it generally is cut, as it first comes into the dough or milk. After that it is handled as is other hay. Cutting it up would be a benefit on account of the woodiness of the stems, it would probably be more of a help than to other grain hay. It could be put into the silo, but would of course have to be cut pretty green and would have to be run through a cutter and blower. Putting it in whole would be out of the question. In the silo, the fermentation would largely overcome the woodiness of the stems. It would also as a silage balance up nicely with alfalfa and the best way to do would be to mix it with alfalfa when putting it in.

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Live Stock on Paicines Ranch.

[Written for the PACIFIC RURAL PRESS by
J. C. LOOMIS.]

Perhaps no other large ranch in San Benito county has been better known in the past than the Paicines Ranch, located about 13 miles from Hollister, due to the fact that for 30 years it was the home of high quality pure-bred Short-horns. Under the ownership of A. B. Grogan, of San Francisco, the ranch was highly improved with good buildings and fine fences and with a 10,000-acre ranch one can appreciate what the cost must have been in putting such a place under first-class improvements.

For several years after Mr. Grogan's death the ranch was run under various managements until bought by the present owners, who are known as the Paicines Ranch Co., Dr. H. J. Macomber, ranch manager.

When this company took charge, seven years ago, their idea was to make it into a strictly pure-bred stock ranch and selected Short-horn cattle and Percheron and Belgian horses to accomplish that end.

To give some idea of the ranch itself, there are 1200 acres of meadow lands lying along the San Benito river, 300 acres of that being planted to alfalfa, and the rest being in natural grasses. The balance of the ranch is mostly hilly land with a great many oaks for shade scattered all over. On this hilly land there are two orchards planted to peaches, prunes, and apricots, with a total of 300 acres, and also about 1000 acres of grain are put in yearly. The balance of the acreage is in wild grasses such as alfalfa, burr clover, etc., which makes an excellent range the year round.

Some beets, carrots and corn are usually planted every year on the meadow land for stock feeding, but no silos are used, as a shortage of range is rarely encountered. In fact, this year, when most stockmen are having to sell a great deal of stock on account of the shortage of feed, this ranch is carrying the usual amount.

Horses.—In regard to the horses on the ranch, as before stated, Percherons and Belgians were selected and only those of highest quality were purchased, no expense being spared, some of the stallions having a long list of prizes awarded to them in European countries. Young brood mares were imported from France and Belgium, and since that time new stallions have been brought out at different times.

At the time of our visit there were 150 head of horses on the place, of which 50 head were pure-breds.

The brood mares are used for general farm work except when heavy with foal, at which time they are turned out on pasture.

The young pure-bred stallions are taken up at about eight or nine months of age and put into the stables, where they are daily exercised.

There are at present three service stallions and four younger ones. Of the younger ones, a large black two-year-old, Premier, deserves especial mention, as he was a great winner at the Sacramento State Fair last year, taking everything in his class up to Grand Champion. As he was bred and raised on this ranch, it shows that California can raise high-class draft horses with the proper foundation stock.

One pacing stallion is kept to breed saddle horses to, and on a recent trip to Kentucky Dr. Macomber purchased a few head of high school saddle horses. The object is to eventually keep about the same number of horses as at present, but instead of having part grades to keep only pure-breds.

A visit to the horse barns is in itself worth a trip to this ranch, as some fine individuals can be seen.

The Short-horns.—Having been a cattle ranch for a great many years, the work of building up that end was easier to get at, as the stock bought with the ranch had been carefully selected, the foundation having been imported from Scotland by Mr. Grogan many years before.

After acquiring the ranch, the new company spent a great deal of money in purchasing new bulls and cows, the practice being to breed the

original stock to the new bulls, and as fast as young stock came on to sell off the older cows. In this way the ranch has been restocked, until now there isn't a cow on the place over three years old. At present there are 1200 head of cattle on the place containing 300 head of pure-breds, and with the continual use of good bulls the grade stock has been built up to a high standard, and one can readily see the advantage of having used pure-bred bulls when comparing this stock with the ordinary scrub stock on so many ranches.

The writer was fortunate in seeing about 100 head of cows and steers brought in which were being sold to a buyer, who stated he would rather have such stock at a good deal higher figure than ordinary stock at a cheap figure, as he could by stall feeding put a great deal of flesh on such stock at a comparatively low cost.

Pure-bred Handling.—While the grade stock is run on the range, the pure-breds are kept on the meadow land. This meadow land is cross-fenced into fields and from 30 to 40 head of cows turned in. Located near each such field is a small pasture with a small barn in which a service bull is kept. Each day a man turns the bull into the field and after breeding is put back into his own pasture. In this way records as to date bred, etc., are kept, and the stock run in a natural way on the pasture.

In connection with this wild pasture, the alfalfa hay is fed when needed, and with this combination the bottom land is almost ideal for a breeding ranch.

As with the horses, the object with the cattle is to eventually have all pure-breds, the plan as outlined at present being to replace from time to time grade range stock with pure-breds until all of the grades are worked out. The registration on that part of the stock will not be kept up, but pure-bred bulls will be used, the object being to so build up the beef stock that quicker growth and therefore better prices can be realized from the output of butcher stock. In connection with this a herd of registered stock will be kept on the meadow land, the same as at present, and the increase from these will be disposed of for breeding purposes. As with the horses, no expense was spared in securing the pure-bred cattle on the ranch, and for this reason a great foundation herd has been gathered which will add greatly to California's pure-bred livestock in the future.

This year a few Hampshire sheep were brought out from the J. B. Haggin ranch in Kentucky. While no large amount of sheep will be kept, it is the aim to raise just enough well-bred sheep to keep the fence corners, creeks, etc., cleaned free from weeds.

This year a magnificent new dwelling house is being built which when finished will be one of the finest in the West, having a large swimming pool and other modern conveniences included under the one roof. When this as well as other contemplated improvements are finished, together with only pure-bred stock all over the ranch, there will be few breeding establishments in the United States which can compare to this one, and by the 1915 Fair no doubt a great many distant breeders will leave the ranch with the impression that the Paicines Ranch Co. is really doing big things in a big way.

Starting in the Dairy Business With Small Capital.

[Written for the PACIFIC RURAL PRESS by
J. C. LOOMIS.]

In a recent copy of the Press an enquirer from Tennessee wished to know what could be done with \$4,000 in an attempt at making a living on a California farm with that amount of capital for a start.

While, of course, a great deal depends upon the man, his business judgment, and various other things, we give in the following the story of how one man has not only made a living, but has also greatly increased his holdings with less than \$1,500 capital in the dairy business, and that, too, in only five years.

The above results have been obtained by Charles N. Odell, located near Modesto, Stanislaus county. While Mr. Odell was raised on an Eastern farm, his interests had always been more along beef lines, his father having been a breeder of pure-bred beef cattle. When he landed in Stanislaus county he had between \$1,000 and \$1,500, and after looking over the field pretty thoroughly, decided that dairying would be the most profitable; so he purchased 20 acres of alfalfa land at \$100 per acre. This was bought by paying part cash and leaving the balance in the shape of a mortgage. After putting up a small house and getting the land into shape, he began to figure on some cows. With no capital he went to the creamery, and after explaining the situation he was able to borrow money with which he bought 10 grade cows and started to milk. Believing in giving his stock plenty of feed and care, he was able to make as high as \$120 per month some months from the 10 cows.

With the first 10 cows the results were so good that from time to time more stock was added as fast as the money was available which was not needed for other purposes such as payments on land, household expenses, etc.

Mr. Odell's main idea was to carry every head of stock on his 20 acres possible in order to feed up his hay instead of having to sell part of it, thereby losing the fertilizing value of it; and since getting fairly started he has never sold a ton of hay, but on the contrary has bought as high as 115 tons in one year to be fed on his place.

For the information of those who wish to know

just what can be realized from a ton of alfalfa hay fed to cows, it might be said that Mr. Odell figures hay fed to an average good cow, including fertilizer, butter-fat, etc., worth at least \$16 per ton and would not consider selling any for less.

Being progressive in his line, Mr. Odell, after two or three years with the grade stock, decided to add a few head of pure-breds; so from time to time he purchased in different places whatever Jersey stock he could afford, the main idea being to increase the butter-fat receipts, with the result that he has at present fine individuals such as Pedro's Marigold Quienne with an official record of 405 pounds of fat as a three-year-old, and Plucky's Maid with an unofficial record of 53 pounds the first month fresh and 226 pounds for the first five months.

While in the past good grades have been milked as well as the pure-breds, from now on only pure-breds will be kept. But it is interesting to note the large production of some of this grade stock, and as Mr. Odell is a member of the Stanislaus Cow Testing Association, he knows exactly what they have done. One of these grades made 398 pounds of fat last year and was dry five weeks. Another which had been registered in the Pacific Coast Club, therefore considered a grade at present, gave 345 pounds of fat in 11 months.

Not only good producing cows have been bought, but also good bulls with authenticated records back of them, the present herd bull being Peerless Laddie, sired by Interestia Plaisiar out of a daughter of Lillian of Raymond which is a grand looking animal.

From now on all cows not giving 300 pounds of fat a year will be sold, and this year a great deal of official testing will be done, with the idea of putting several head on the Register of Merit of the American Jersey Cattle Club.

In the past, straight alfalfa has been fed, but from now on for cows averaging from 1 to 1½ pounds, a ration of 6 pounds of barley, 4 pounds of coconut oil cake, and 2 pounds of bran will be fed to each cow, together with whatever alfalfa hay they will consume.

While perhaps the reader may think we have strayed away from the question at first mentioned, it is necessary to know what is on the ranch at

present to find out what has been made from the first investment. At present there are 20 head of grades with a value of \$75 per head, and 22 head of pure-breds at a valuation of \$150 per head; also, in the past year, another 20-acre piece of alfalfa land has been purchased. In adding up a total of the assets, we find that the stock is worth about \$4,800.

Since Mr. Odell purchased his land it has increased in value from \$100 per acre to \$350, the price he recently paid for his last 20 acres.

With 40 acres of land at such a valuation, we have a total for land value of \$14,000. This with the \$4,800 invested in stock makes a total of \$18,800. As the above total includes the rise in value of the land, perhaps some will object to

allowing the above amount as earnings from dairying, but for those who consider it in that light, one can deduct all of that increase and still have left over \$1,000 per year savings besides having a good living for the five years.

While we do not mean to infer that everyone will make the success that Mr. Odell has in dairying, we give it believing that dairying in California holds out many advantages to men who have a small amount of capital and an ambition to crawl up the ladder of success.

To conclude, it should be said that good soil and plenty of water have been a big factor on this ranch, and that if these conditions had not been so good, perhaps different returns would have resulted.

Methods of a Pioneer Dairyman.

[Written for the PACIFIC RURAL PRESS by
J. C. LOOMIS.]

The prevailing opinion among California dairymen in regard to going into the pure-bred business seems to be that the only way to make it pay is in the sale of young stock at fancy prices in connection with the butter-fat receipts.

In fact, many dairymen running grade stock will tell one that "This idea of keeping pure-breds to simply increase the creamery check sounds all right, but if it wasn't for selling the calves at fancy prices this or that breeder would soon go out of the business, as from a purely butter-fat basis they won't pay."

While the above is a question that each man has to work out to his own satisfaction, it may be interesting to learn how at least one dairymen in the State has made his pure-breds pay from a purely butter-fat standpoint.

This man is T. B. Roy, of San Geronimo, Marin county, and the fact that he has made his herd pay for over 30 years on a ranch where practically no alfalfa has ever been grown, would seem to show pretty conclusively that the better stock does pay in the long run.

Mr. Roy went to Marin county in the early '70s and at that time rented land and started dairying. In those days most of the land in his vicinity was held by one or two men, but later was partly subdivided, at which time he purchased a part of his present ranch. This land is about 50 per cent hill land and the balance valley land, so that there was really only about half of the ranch which could be used for field crops, the hill land being at that time, as at present, used entirely for pasture.

After purchasing the land he continued dairying and the making of his butter-fat into butter for a number of years with grade stock, and from his statements we judge that the word "scrub" was a very fitting one for the grade cow of that day.

As there was more or less interest manifested in better stock in his neighborhood, and particularly in Jerseys, in 1882 Mr. Roy decided to lay the foundation for better stock, and while attending an auction sale purchased a bull, mature cow and a heifer, all of which were registered Jerseys. To show what can be done with one cow and a heifer, it should be said that these two animals were the only pure-bred females which were ever brought onto the ranch, and that all of the results since that time are due to a great extent to the good qualities in these two foundation cows. At the time of this purchase neighbors laughed at him and told him he must have lots of money to spend \$180 for one cow, the price he had paid. The fact is he was no better able to buy them than his neighbors, but he felt the need of better stock.

At that time every dairymen made his own butter, which was shipped to the San Francisco market, and here, too, Mr. Roy found that he could improve upon conditions, as by using more sanitary methods in his buttermaking than his neighbors thought necessary, he was able to always sell his butter from 3 to 5 cents more per pound, and in fact still gets that much of a bonus for his product the year around. To show that his product is appreciated, he has only had two buyers to handle his butter in 25 years, and they have paid him his price for the butter laid down at

the depot in San Geronimo.

To go back to the stock, however, it was soon found that the \$180 cow was making more money than several of the others, so he began to register his young stock in the American Jersey Cattle Club as fast as he raised them, and this practice has always been continued, with the result that his present herd are all in good standing and have their papers back of them.

When buying bulls he was always particular to purchase one with A. J. C. Club papers back of him, and an animal, besides being a good looker, had to have good records before he was put at the head of the herd.

Mr. Roy's idea of what a dairy cow should be was that she must be good-sized and have a strong constitution, and consequently he has always bred for those points, but he considers one of the most important things to avoid is the breeding of heifers when they are too young, thereby stunting them. His practice is to have his heifers come in when they are 2½ years or older, and anyone seeing his herd will surely agree that for size and constitution they are much above the average California Jersey, and it would seem that the early breeding does affect the size, as some individuals which are in the herd that were bred younger show a great difference in size. While the above points were always in view, the milk-bucket was considered of more importance, especially with the heifers. As most agree, all pure-bred stock are not necessarily good producers; so Mr. Roy has always tested his heifers before deciding whether they were to be kept on the ranch or not.

Buttermaking has always been practiced, as before stated. Mr. Roy has been able to keep pretty closely in touch with the production, which a great many of our California dairymen are not doing.

Through culling out and breeding up with better bulls, Mr. Roy was able to bring his average up to 365 pounds of butter one year for the entire herd. As a great many were heifers at the time, and as there were also several grade cows in the herd, one can readily see that he has an exceptionally fine lot of producers. As stated at first, this herd has been run strictly as fat-producers, Mr. Roy always having sold his young bulls and heifers at ordinary scrub stock prices, and it was for this reason that no official testing was ever done. Perhaps some may consider that a great deal of money has been lost by selling the young stock too cheap, but Mr. Roy has only kept the stock for two reasons: first, for the extra butter-fat, and second, for the love of a pure-bred animal.

As a rule, where this class of stock is kept, it is thought necessary nowadays to be in an alfalfa community, but Mr. Roy continues with a very little alfalfa; not that he does not consider it good, but because he has only what he buys.

The cows are pastured on the hills in the spring for about three months, and by that time the oat hay is usually ready to begin on. This and some alfalfa are fed the balance of the year, along with some mill feeds, Mr. Roy having found coeanut oil cake very good in addition to the other feeds. About four acres of corn are planted every year, of the White Mexican variety. This is cut green every day as used and fed liberally to the stock, and takes the place of other green feed in the

fall. The cows are allowed to eat all of this that they care for once a day, and fine results are obtained. The White Mexican is used, as it has been found that the cows eat it better if it happens to get a little too ripe than they will sorghum or kaffir corn.

Mr. Roy has increased his holdings from time to time until he has at present over 700 acres, all of which is used for dairy purposes, there being at present 110 head of stock on the place, of which about 90 are registered.

The herd is strong in the following well-known Jersey blood: Situate, St. Lambert, Stoke Poyis, and Golden Lad, the present herd bull being Combination Affidavit 70479, sired by Mays Hansome Lad and out of Justa B. He was purchased from H. C. Taylor, Orfordville, Wisconsin, and is a fine-looking individual.

Pure-bred Berkshire hogs have also been kept on the ranch for a good many years as a by-product, and have proved very profitable as consumers of the skim-milk and buttermilk.

As Mr. Roy is past his seventy-third birthday, he has turned the ranch over to his son, who, with his practical experience coupled with a university training at Berkeley several years ago, will no doubt continue to improve the herd.

In closing, we might state that we believe Mr. Roy's name will long be remembered in Marin county as one who kept and loved good stock, and, what is more important to most, made it pay from the butter-fat receipts alone—something very few have accomplished in the past.

FLEAS ON HENS.

To the Editor: Today I am sending to you a small parcel containing some insects. There seems to be two kinds of them. The largest size were found with their heads imbedded in the flesh of a hen just above her eyes, and were so persistent in clinging to their prey that they had to be removed with a knife blade. The smaller insects moved rapidly over the body of the fowl and did some hopping after being placed in the vial. Please tell me what each variety is, and the best way to exterminate them.—J. F. W., Malaga.

We took the vial over to Prof. Woodworth of the University of California, who stated that all the insects were fleas, only that and nothing more. There were also in the vial some eggs and larva which were laid and developed since you caught the insects. It is a new thing, however, for fleas to hang on as you describe. The difference in size might be due to the difference in sexes, as the females are larger than the males; or to the fact that the insects eating would be larger than those without a big dinner in them. Plenty of ashes, a moist mulch for the hens to dust in, a dusting with buhaeh, a thorough cleaning of the premises, and a good application of oil to the houses will surely make life miserable for all insect pests and comfortable for the hens.

SMOKING OUT BEES.

To the Editor: What is the best way to smoke out bees that have made their hive under the roof of a bungalow? We have tried burning sulphur, but without effect. There is no way to get in where they are.—C., Marin county.

In certain situations it is practically impossible to kill a colony of bees. Sulphur is probably the best substance you could use to burn, and if you cannot get the fumes to the bees in any other way, possibly you can borrow a bee-smoker from some beekeeper in the neighborhood and blow the fumes in through a hole in the wall. You might do even better with a smoker used in gopher eradication which can be obtained from any large hardware establishment that deals extensively in agricultural apparatus. If you can't kill them by blowing sulphur fumes into the space where they are, you had better give it up as a bad job.

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AGRICULTURAL REVIEW.

With the Fruit Men.

The Sutter Farmer states that wine-
grape growers in that section are being
offered \$10 and \$12 for their grapes on
five-year contracts. Some buyers are
said to be paying \$15 for Thompson's
Seedless grapes for shipping or drying.
It is thought prices will be higher by
harvest time.

The annual meeting of the Sutter Cured
Fruit Association was held at Yuba City
last week, at which time it was decided
to build a big warehouse and install a
raisin-stemming outfit this season.

The last prunes, amounting to 275
tons, which were in the Chico 1912 pool
were sold last week on a 3-cent basis.

A dispatch from Selma states that the
Associated Raisin Co. has purchased
about 1000 tons of 1912 raisins held in
that vicinity. The fruit is being deliv-
ered to the warehouse and seeding plant
of the company at that place, to be ready
to be moved at once when the market
is right. A uniform price of 2 3/4 cents
was paid to growers.

Plum shipments from Kings county
will commence about June 15th.

Marion Barnett reports a fine crop of
almonds on his 40-acre orchard near Oak-
dale. The land is remote from irriga-
tion, but is successfully handled on the
dry-farming basis.

Reports from Yuba City state that
peaches will be a good crop and that al-
ready offers are being made of \$30 per
ton for Phillips and Tuscan cling peaches.
Around Fresno the prices paid are said
to be \$25 for Phillips and \$30 for Tus-
cans.

A dispatch from Chico says that the
Everfresh Products Co., an Oregon con-
cern that has a patent on a fruit and
vegetable drying process, will, during the
early fall, start a factory in that city
for the working up of products of that
section. The cost of installing the fac-
tory will be \$25,000, and the company
will ask the growers of the neighborhood
to subscribe for a certain percentage of
the stock after the factory is built.

On Raisin Day, April 30, a firm of Sa-
linas merchants sold over three tons of
raisins at 5 cents per pound, and say
they could have sold more had they had
them in stock.

The Valencia orange crop of Exeter is
now being packed and shipped. The fruit
is said to be sweeter than usual, and
should bring fancy prices.

The Fowler Fruit Co. has been buying
1912 raisins, paying 4c for Thompsons,
3 1/4c for Muscats, and 3c for Sultanas.

Lindsay may soon have an olive pick-
ling factory. A proposition was made to
the growers there last week to build a
plant by a Los Angeles concern, pro-
vided a portion of the money was raised
locally.

The Fruit Growers' Association of
Kerman has sold its crop of peaches to
the California Fruit Cannery Association.
Prices paid were \$27.50 for Tuscan
clings, \$25 for Phillips, and \$20 for Or-
ange.

The Eldorado county Bartlett Pear Show
will be held at Placerville, August 28,
29, and 30. Prizes aggregating \$1000 will
be given, and pear, peach, and plum-
growers from every section of the State
are invited to send their best fruit to
enter into competition. Parties wanting
further information should write to the
secretary of the association at Placer-
ville.

At the last meeting of the board of
directors of the Corning Olive Growers
& Producers Exchange, Inc., it was decid-
ed that a time limit be placed on the ad-
mission of new members who may have
shipping fruit to be handled through the

Exchange, as follows: Shipping apricots,
June 5; shipping peaches, July 1. This
action was deemed necessary to enable
the Exchange to properly prepare to
handle the fruit. Prospective members,
having shipping fruit, will have to take
chances if they delay signing up until
after the dates mentioned. Each mem-
ber was requested and urged to report a
close estimate on all his products at the
next regular meeting of the Exchange, to
be held on June 2, and all growers were
cordially invited to attend said meeting.

Prunes are commanding better prices
as the crop nears harvest. At Healds-
burg it is stated that offers are being
made of 4 1/4c. Buyers in the Santa
Clara valley are said to be offering 4 1/4c
for new crop and 3 3/4c for 1912 prunes.

Apricots are being shipped from the
Imperial valley. About 100 cars will be
sent out for the fresh fruit trade.

The almond crop in the section around
Banning is reported to be in fine con-
dition.

C. F. Baker, of the Pomona College,
has been appointed by State Horticul-
tural Commissioner Cook to the position
so long held by George Compere, as State
collector of beneficial insects.

Drouth and Frost Bad.

The combination of frosts and drouth
has been pretty bad in many places. A
correspondent from San Joaquin county
writes: "I have found things in worse
condition throughout the county than
I expected. I counted on finding better
crop conditions as I got nearer the Sierra
Nevada foothills, but it is just the same
old story. Thousands of acres of grain
are being pastured, the hay being too
short to pick up with a rake. To add to
all of this, the frost practically cleaned
out the peaches, apricots, almonds and
prunes, and did some damage to the
grapes."

Pajaro valley suffered considerably from
frost this spring, with the result that a
great many of the apple orchards of that
district have suffered. Some growers
claim as much as 50 per cent damage as
a whole, while others place the loss at
from 30 to 60 per cent.

The sugar beet and potato crop near
Salinas will be shorter in the Salinas
district of Monterey county this year than
for some years past, due to the dry
weather of the past winter. It is thought
that the small acreage will materially af-
fect prices of potatoes in that section this
year. The grain and hay crops are also
reported almost a failure on most ranches
in this valley, a great many farmers not
having sufficient hay for their own stock.

Changes at the Agricultural College.

The College of Agriculture of the Uni-
versity of California, at Berkeley, an-
nounces promotions in professorships as
follows: W. T. Clarke, former associate
professor of horticulture, is to be profes-
sor of agricultural extension and super-
intendent of Farmers' Institutes; E. E.
Babcock is advanced from associate pro-
fessor of agricultural education to pro-
fessor of genetics; F. T. Bioletti, from
associate to full professorship in viticul-
ture and entomology; J. S. Burd, to full
professorship in agricultural chemistry;
and C. B. Lipman is made professor of
soil chemistry and bacteriology. Al-
though not officially announced, we are
told that Prof. G. H. True, head of the
agricultural college of the University of
Nevada, is to take F. H. Marshall's place
at the State Farm this year. If this is
true the stockmen of California will ex-
tend him a warm welcome. Another pro-
motion to a professorship at the college

is that of Dr. C. M. Haring, in recogni-
tion of his work with the hog cholera
serum.

Among other appointments to take
effect with the next college year are: B.
H. Crocheron, to be assistant professor
of agriculture extension; David N. Mor-
gan, to be assistant to Director Thomas
F. Hunt of the experiment station; D.
B. Pratt, assistant professor of pomology;
Dr. Walter Jennings Taylor, assistant pro-

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fessor of veterinary science; Ira J. Condit, instructor in citriculture; L. J. Nickels, instructor in insect industries at the university farm; R. E. Campbell, assistant in entomology; Miss Lillian D. Clarke, assistant in agricultural extension; Dr. Wilson Gee, assistant in genetics; H. J. Guise, poultry foreman at the university farm; H. L. Hurst, buttermaker at the university farm; O. W. Israelson, assistant in viticulture at the university farm; Miss Flora B. Starn, assistant matron of the university farm dormitory and trained

nurse; and E. E. Voorhies, assistant in animal husbandry.

Included in the list of promotions not announced previously are: W. V. Cruess, to be assistant professor of zymology; F. L. Griffin, assistant professor of agricultural education; F. M. Hayes, assistant professor of veterinary science; T. Francis Hunt, assistant superintendent of Farmer's Institute; C. H. McCharles, assistant professor of nutrition; B. A. Madison, assistant professor of agronomy; C. L. Roadhouse, assistant professor of veterinary science; Mrs. D. L. Bunnell, librarian of the department of agriculture; G. A. Coleman, instructor in entomology and curator of the agricultural museum; George P. Gray, instructor in insecticides and chemist in the insecticide laboratory; J. F. Mitchell, instructor in veterinary science; S. S. Rogers, instructor in plant pathology; Miss M. E. Stover, instructor in nutrition; C. J. Wight, instructor in botany; F. H. Wilson, instructor in soil technology; E. C. Van Dyke, instructor in entomology; Miss C. J. Hill, assistant in dairy testing; Miss Katherine D. Jones, assistant in landscape gardening; Miss E. H. Smith, plant pathologist.

Land Development.

In the district around Bloomington, San Bernardino county, several large holdings have been subdivided and sold in small tracts. The land is mostly adapted to citrus fruits.

Stoddard Jess, of Los Angeles, is having several artesian wells bored on his land in Kings county. One well 2000 feet deep was brought in last week with a fine flow of water.

An irrigation district is being formed to comprise 50,000 acres of land lying between Honcut and Palermo, Butte county.

The Solano Irrigated Farms Co. is getting a large tract of land in readiness to irrigate and plant to beans and alfalfa.

The 2360-acre ranch belonging to the Fresno Copper Co., located about four miles north of Clovis, was sold last week to a local syndicate which, it is stated, will sell it in small tracts.

Some weeks ago we published a news item to the effect that the great Vina ranch, owned by the Stanford University, was to be sold to a syndicate and divided into small farms. We have since learned that the information was incorrect. While we, in common with most Californians, like to see the way opened for greater population, yet in this instance we are pleased to learn that this great ranch is to be kept intact as a revenue producer as well as a model ranch for the good of the work being done by Stanford University.

Live Stock and Dairy.

An item in the Santa Rosa Republican states that poultrymen are feeling more hopeful of a prosperous season now that prices of eggs have gone up to 20 cents per dozen. Owing to the fact that many poultrymen have quit on account of low prices, fewer eggs are being produced, and as there are less in cold storage than usual, the chances are that prices will be good this summer and next winter.

Heavy shipments of cattle have been made from the Porterville district to the Sacramento valley the past few weeks.

A train of 40 cars of cattle were shipped by Miller & Lux from Los Banos recently to their ranches in Nevada. This was the fourth large shipment made by this firm during the preceding 30 days.

Five hundred head of cattle from Monterey county, and as many more from Gilroy, have been shipped to Mendocino to be pastured this summer. The Hebrons were in charge of the shipments.

The manager of the Modesto creamery states that his concern is now making

6000 pounds of butter per day. Most of the butter is put up in 2-lb. squares for the San Francisco market.

Corcoran is getting on the map as a poultry center. One ranch there now has 5500 laying hens and 5000 young chickens. Another ranch has 3000 chicks hatched and will increase the number to 12,000.

Prices for butter-fat dropped about 10c per pound at the Tulare county creameries during the past month. Even now from 1 to 2c per pound is being paid more than at the same time last year.

Another steamer arrived from Australia last week bringing a large consignment of frozen beef, veal and mutton. A representative of the shippers who accompanied the cargo stated that his company was also preparing to send large quantities of butter to this Coast.

Large shipments of cattle are being made from San Luis Obispo county on account of scarcity of feed. Some 30,000 head will be sent out this season.

W. M. Birch, agricultural inspector for the Government in the Philippine Islands, recently purchased a dozen thoroughbred Berkshire hogs from Harold Armstrong and A. H. Brinton of Yolo county.

A report from the Portland Union Stock Yards for last week states that the cattle market was steady to firm during the whole week. Steers topped the market at \$9, best cows brought \$7.75, calves \$9, bulls \$6.50, hogs \$8.35, lambs \$7.25, and wethers \$6.

General Agriculture.

Ira Conger has planted 1000 cuttings of spineless cactus on land that he is subdividing near Mendota.

A. G. Kohnhurst, the treasurer of the

Western Cantaloupe Exchange, estimates the Imperial valley melon crop at 3000 cars this season. The crop will be about a week later than usual, owing to cool weather. The total acreage planted to melons in that valley is stated to be 6674.

A dispatch from Oakdale states that A. B. Haslacher, of the milling company there, estimates the grain crop in eastern Stanislaus county at 40% of last year's yield. West of the San Joaquin river the crop is practically a failure.

An alfalfa-meal mill is nearing completion at Porterville. It will have a capacity of ten tons per day.

A consignment of three tons of Burbank's spineless cactus was received at Thermalito last week and is being planted on the land of the Cactus Nursery & Model Ranch Company.

As a result of the work of H. H. Howard, president of the California Ramie Fiber Co., several farmers of Yolo county have agreed to plant ramie as a commercial proposition.

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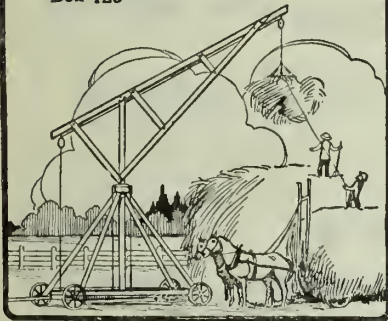
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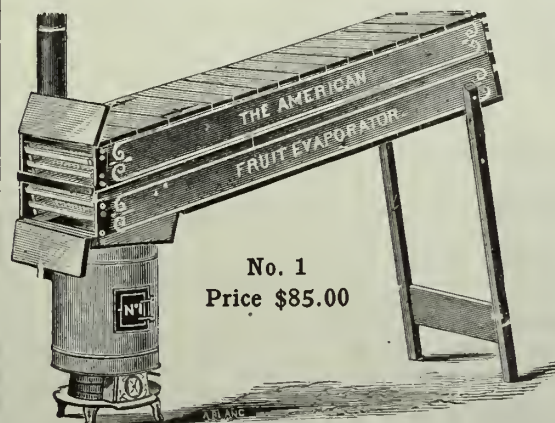
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Sudan Grass Promising Forage Crop.

The Bureau of Plant Industry has just issued a bulletin describing Sudan Grass, a relative of the sorghums and a species of Johnson grass, that promises to be one of the finest forage crops of grasses, of course omitting alfalfa, that is grown in the western and semi-arid States where irrigation is practiced.

It is a native of northern Africa and was discovered as a result of a search by the Bureau of Plant Industry for some variety of Johnson grass that would not throw out root stocks as Johnson grass does. Thus it is purely an annual, lives its life and dies, makes a very vigorous growth and provides a fair quality of roughage. It requires about the same soil and care as the sorghums, like Egyptian corn, but will stand a cooler climate. There is also a second variety called Tunis grass, which is spoken of below.

A few extracts from the bulletin will give the essential points regarding this Sudan grass that are interesting in California.

Trials at numerous places have demonstrated that Sudan grass promises high value for hay, especially in the semi-arid regions where no perennial grass has thus far been found suited to the conditions. Indeed, it is not too much to that it is there destined to become the leading grass for hay production. Under more humid conditions Sudan grass has also succeeded admirably and it will probably replace the foxtail millets to a large extent, as it produces better hay and usually larger yields. Tunis grass has not as yet been widely tested, owing to lack of seed. It is slower in starting growth and less tall than Sudan grass. As it shatters its seed very readily it is likely to be of only limited usefulness

unless this character can be changed.

Individual plants of Sudan grass under more favorable conditions will attain a height of 8 to 10 feet and may possess 20 or more stalks to a plant. The stems seldom become larger than a lead pencil, even in the largest plants. Broadcasted or drilled, the height averages 3 to 4 feet, and the stems are much finer. The stems are mostly unbranched, strictly erect, and decidedly leafy, very much more so than Johnson grass. The sugar content is small, but enough to give a decided sweetish taste. The flower cluster is loose and open, pyramidal in form, and 6 to 12 inches long. There is practically no shattering of the seed at maturity.

SEEDING SUDAN GRASS.—Sudan grass may be sown broadcast, drilled, or in cultivated rows. Where there is sufficient moisture, broadcasting or drilling is preferable; otherwise the grass is likely to be coarse. In seeding this way 3 pecks of seed to the acre should be used.

Under conditions of light rainfall Sudan grass is probably best sown in cultivated rows, though excellent results have been secured in dry regions from broadcasting. In rows 36 inches wide, 4 pounds of seed to the acre are sufficient, even with rather thick seeding, which is recommended when grown for hay. For seed production much thinner seeding has given excellent results.

It is sometimes practicable in humid regions to sow in 18-inch rows and cultivate. This is especially desirable where the land is very weedy. The grass grown under such conditions does not become too coarse, and, furthermore, the dense shade kills out the weeds. Five pounds of seed to the acre should be used when thus sown.

CALIFORNIA RESULTS.—The only place reported from in California is the Chico Plant Introduction Station, from which Roland McKee gives the following account of its behavior last year.

Two rows of Sudan grass, one 75 feet long and the other 150 feet long, were grown at Chico in 1912. It was grown on good loam soil and given irrigation. A fine growth was made, and without question this is the most promising grass for growing under irrigation in the Sacramento valley that has yet been tried. The number of cutting of hay that it is possible to secure was not determined, as with both the plantings a seed crop was allowed to mature, but it seems probable that three good cuttings of hay can be made. One of the plantings was allowed to produce a seed crop from the first growth. This was harvested late, but still a good hay crop was produced after that date. The other planting was cut for hay shortly after it came into bloom. A good crop of hay was secured and after that date a seed crop was matured.

The following data give some idea of the growth of this crop:

May 2—Row 1, 75 feet long; sown.

July 9—In full bloom and 48 to 72 inches high.

July 15—Cut for hay.

August 29—Second growth 60 to 90 inches high.

November 1—A good crop of seed was ripe.

May 13—Row 2, 150 feet long; sown.

July 9—In first bloom, and 36 to 40 inches high.

August 20—First seed ripe.

August 28—70 to 80 inches high.

Sept. 14—Cut for seed; 18 pounds secured. Yield about 40 bushels per acre figured on basis of 4-foot rows and 30 pounds of seed per bushel.

November 1—Second growth 3 to 4 feet high.

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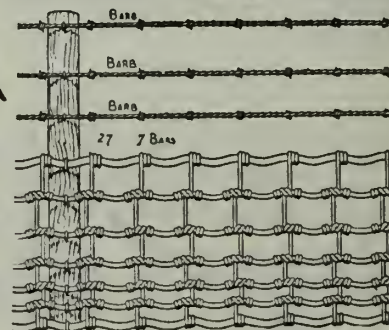
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Effect of Condition on Milk Test.

As a general statement it is true, though there exceptions, that the nature of the feed of a dairy cow has little influence on the richness of the milk. In opposition to this it has been found that the condition of a cow, especially in relation to loss of weight or gain of weight has much bearing on the amount of fat in milk.

In definite terms, a fat cow that is losing some of that fat will put much of it in the milk and give a milk that is much richer than normal, or what she would give if she were just keeping her weight. Likewise a cow that is putting on fat may give milk less rich than when she is of stationary weight. An illustration of these two tendencies is given in experiments conducted at the Missouri Experiment Station.

In the course of one of the investigations, a Holstein heifer calved in as fat condition, as it was possible to get her by continuous feeding from birth. Another heifer of practically the same age and breeding, was fed from birth until she came in milk on a ration of skim-milk and hay without any grain whatever. As a consequence, she was decidedly thin at calf birth. The milk of the heifer in good condition tested over 4 per cent at the start while the milk from the one in thin condition tested about 3

per cent. The fat heifer declined in weight for several weeks and during this time continued to show a high per cent of fat. When her weight became stationary, her per cent of fat declined until it was practically the same as the other. The thin heifer made no decline in weight and showed no decline in the fat in her milk. Later she began to gain in live weight, she having been put on a liberal grain ration immediately after calving. Her per cent of fat increased slightly until the two became practically together.

It need not be stated that some of the seven day records or other short time records in breed associations can be influenced by getting the cows more than normally fat before calving, thus making their milk richer for a time than it would be naturally. It is also clear that such rich milk is given only for a short time and that long term tests, notably yearly tests have to be accurate and are not influenced materially by such methods.

This same proposition of the cow giving up her own fat in the milk can be carried much farther, and cows in normal flesh, but suffering some temporary indisposition that breaks down the tissue a little also makes for richer milk as a part of the fat from the body goes off in milk. Thus the milk when the cow is at all fevered from a wound or other

cause is in heat is much more likely to test above normal than not. Thus dairy-men who have the milk tested when the cows are at all off normal are likely to be misled and should have the milk of such cows retested. Milk also of cows in run down condition, if these are building up, will neither be as rich nor as abundant probably as the milk of the same cows when they had attained full bodily strength.

Another illustration of the way that a cow will draw upon her own body for her offspring, that is, for the milk is given below.

A mature Jersey cow was fed a liberal ration for two months before calving in order to get her unusually fat. Immediately after the birth of the calf she was put on a ration that was sufficient only to maintain her body weight, according to the maintenance values as usually estimated. She was fed for 30 days on a ration of 3½ pounds grain and 7 pounds hay a day which was estimated body maintenance. At the beginning she produced 21 pounds of milk a day. During the 30 days the decline in milk was very slight. Indeed—at the end of the 30-day period she was producing 19½ pounds a day. During the time she lost 115 pounds in live weight. In the beginning she was smooth and excessively fat for a Jersey cow, but at the end of the 30 days she was decidedly thin and emaciated. Beginning with the 28th day it was observed that she was becoming weak and she staggered as she walked. On the 29th day she could scarcely get up when down, yet she produced 19½ pounds of milk. It was not considered safe to continue the test any longer and her ration was increased to a normal amount. During the 30 days this cow produced milk continuously without any feed whatever to supply the nutrients. It is evident that the solids in the milk must have been taken from the body and the decline of 115 pounds in weight shows this was the case. During the 30 days, 43 pounds of fat and 52 pounds of other solids were produced in the milk. The average per cent of fat during the 30 days was 6.9; the normal test for this cow is slightly under 5 per cent. Within 48 hours after her feed was increased, at the end of the 30 days period the per cent of fat in the milk declined about 2 per cent.

An experiment like that seems cruel, but it shows the natural generosity of the cows to give of themselves for their owners, or according to nature for their offspring. No dairyman of course, would break a cow down to get more fat. Such generosity should be rewarded and a knowledge of such generosity makes good feeding and care more pleasant.

A CURE FOR CRIBBING.

Everybody has been interested in the recent "cures" for halter pulling that have been given in these columns by our correspondents. Ways of curing bad habits in horses are valuable and here is the way a correspondent in the Breeders Gazette cured two horses of cribbing. He put either axle grease or machine oil wherever the horses rested the teeth or chin. When the grease got rubbed off he put more on so that they always found it there. They soon got tired of trying, and finally quit. This is not an expensive cure and is worth a trial. It did not take over two months for either horse.



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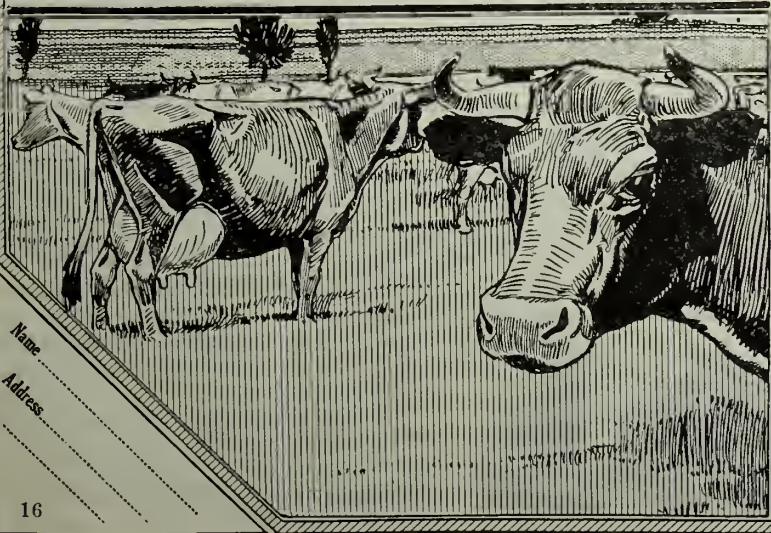
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Diseases of the Egg Organs.

[Written for the PACIFIC RURAL PRESS by
SUSAN SWAYSGOOD.]

In all flocks of poultry there is at one time or other a need for knowledge on the common ailments of the egg organs. The most active breeds sometimes have these ailments, so no one breed has a monopoly on them, though they are more common with sluggish hens, or hens that are fed corn in abundance.

Egg bound is the commonest of these troubles, and very often the poultryman pays no attention to the hen and from egg bound it passes into another stage and peritonitis follows and the hen dies.

Pullets that are overfat before commencing to lay are good subjects for egg bound; as also are overfat and sluggish hens. In some cases where a hen goes on the nest to lay and strains heavily, it brings on heart trouble and the hen dies. So in all cases where hens are confined and do not get sufficient exercise it is well to watch for any symptoms of egg bound. Generally a little help may be given and things will adjust themselves, especially with pullets.

SYMPTOMS.—The hen moves about from place to place, without any apparent object in view, going to and from the nest

without dropping an egg. The tail is carried low, as they are when it is raining. If a hen is caught at this stage the trouble can generally be helped. Take the hen in your hands and watch the movements of the muscles around the vent and you will notice that she is trying to expel something.

TREATMENT.—Pass your little finger, well oiled or greased with mutton tallow, into the passage, this to be sure that the egg is whole, as sometimes a broken egg lies near the passage. Get a bowl of hot water and hold the fowl with her vent in the steam arising from the water. This should relax the parts, but if it does not do so, inject a tablespoonful of olive oil in the vent and also give a teaspoonful every two hours until the egg is passed and all fever leaves the hen. Feed soft food for a few days until the hen recovers, and then reduce the diet.

INFLAMMATION.—Inflammation is a very serious disease and seldom ends well for either hen or owner. Inflammation of the egg passage is a very serious condition and it is seldom that the hen gets over it. This condition is always attended with a constant desire to strain, as if an egg was being passed. As the bird moves around, if you notice, you will see that the wings droop a little as though the muscles were relaxed; the feathers appear ruffled and stand out from the body like the hair on a person's head that is badly frightened. The vent is hot, red and in motion, and as the inflammation spreads—the fowl becomes quieter, the comb pale, and the end is death. And all of this might have been avoided by a little watchfulness and care at the first stage of the trouble. Sometimes an overly large egg causes the trouble and being retained causes irritation and finally inflammation.

If the trouble is cause from an overfat condition, the remedy is to reduce the diet; when hens lay many double yolked eggs it is an indication that they are too fat, and this warning should be heeded at once to prevent further trouble.

If a broken egg is the cause, it must be removed, for until the cause is removed, there is no hope of curing it. Frequent doses of olive oil will help, and the finger, well oiled, should be passed into the passage, and if the egg is in reach removed; if it is too far up the passage for the finger take a pair of small pinchers. After every bit has been removed syringe out the passage with a mild solution of carbolic acid and warm water. Give small doses of sulphate of magnesia and water for a day or two and feed soft food, keeping the hen quiet. Generally speaking, all these troubles can be helped with patience and olive oil. The oil is healing and soothing at the same time that it is helping remove the cause.

SOFT SHELLED EGGS.—This is not what can be called a disease, and yet it causes a loss to the poultryman, and there is always a cause that should be looked up so that we can prevent the loss. Sometimes soft shelled eggs are due to worms in the intestines. When this is the case the egg is stimulated along the passage and beyond the proper stage of shell through the excitation. Again, when hens are too fat internally, they often lay soft shelled eggs. The remedy of course, lies in reducing the diet, or at least the fat producing part of it, making the hen exercise for what she gets and supplying plenty of grit, oyster shell and bone. Generally hens that have access to plenty of bone, will correct this trouble in a short time after the fat is reduced.

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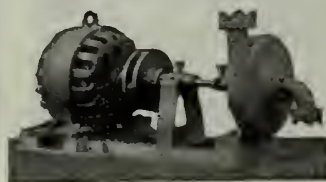
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MADE BY

Western Feed Company
North Point and Taylor Streets
San Francisco

SOLD BY ALL LEADING DEALERS

But there is still another cause of soft shelled eggs, and that is fright. I have noticed at odd times when strangers, or children have been around my yards wearing gay colors, that my hens have dropped soft eggs the next day, this is perhaps because they are just used to me and no one else. Being kept quiet they are scared easily.

Plenty of green feed, or scalded alfalfa even will help to correct the tendency to lay soft shelled eggs, but if one has a valuable hen that does not put a good shell on her eggs give five fluid drops of ergot in a quart of water and allow no other drink. This, however, must only be given on alternate days and not continued over one week.

PERITONITIS.—This trouble is usually from the bursting of a blood vessel, or from tuberculosis, and as a very high fever runs with this disease the birds can rarely be saved. In fact, death occurs before the trouble is noticed very often.

BREAK DOWN.—This is really not to be called a disease, and yet it is not a healthy condition for a fowl to be in. The bagginess is very often caused by accumulation of fat in the abdomen, and is generally the result of a corn diet in the heavy breeds, though I have seen Leghorns with it, but not very many. A hen that has once acquired this condition had better be disposed of for table purposes as they are an eye sore among a flock of nice fowls. The best way is to avoid having such things among your birds by rational feeding.

DROPSY.—This is another disease of the abdomen, and it is hard to tell what causes it, except it may be from poor circulation. The hen is usually very pale, and if killed it will be found that there is quite a large quantity of water in a sort of sack, besides what appears to come from the tissues.

Generally speaking it is old hens that are unfit for breeders that are afflicted with these things, and the best thing is to dispose of them if not past the stage when they are fit to eat. If kept too long, and dropsy is well developed, the hen should be killed and buried, as it is unfit for human food.

Here is an item that I read in the paper, which is worth noticing. It was headed "If a Hen Could Crow".

"An industry twice as big as the iron and steel trade is the egg business of this country, and from Pittsburg, home of steel, the banks announce that they will not lend more than ten cents a dozen on egg certificates from cold storage warehouses. Even at this low rate, the amount of such loans can amount to \$30,000,000. In a few weeks 3,600,000,000 eggs will be placed in cold storage. More than 10,000,000 are being shipped daily into New York. Figures too big to comprehend, but picture the hen more important than all the steel magnates of the country."

Surely in the face of such figures we need not consider we are in a small business, and if the hen can't crow, we who feed and care for her must give a good lusty crow for her. The Petaluma poultrymen have started the ball rolling by crowing about the superiority of the Petaluma egg as a cold storage product. I believe they are right about it too, and as they demand a better price for their product they ought to get it. Sonoma county has a climate of its own and eggs do keep well anywhere in that county.

The year of the earthquake I stored eggs in salt and bran all summer long and kept them out in a grove of redwood trees, and in the fall sent them to a commission man at San Francisco, and received eighteen cents a dozen for all I

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Poultry Department, Hopland, Cal.

WHITE LEGHORNS

Selected and mated to imported stock cockerels.

BABY CHICKS at \$10 per hundred.

EGGS \$6 per hundred in lots of less than 1000 eggs. Orders in excess of this, 10c per dozen above highest market price one week before shipment. 75% fertility guaranteed.

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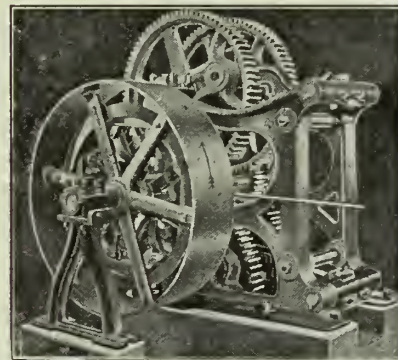
—and by that we mean not only the length of time it will remain actually in service, but the real wide-awake, jubilant, hustling, bustling, get-up-and-get, keep-everlastingly-at-it—spirit which it displays—

determines the cost—and the value

Of course there are other important features such as cost of up-keep and repairs, and these must not be overlooked, for they play a mighty important part in the development of your bank account—for it often happens that the seemingly cheapest article, when first bought, is a regular "eat-her-old-head-off" in performance.

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sent. Now I would not risk that in any other place I ever lived in, that is in summer weather.

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Special Attention to Out of Town Accounts
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The Home Circle.

Why Kathy Married.

Aunt Mary Todhunter smiled and nodded, and called a cheerful invitation to stop and rest a while, to a pretty woman going leisurely past the cottage. The invitation was accepted, and while Aunt Mary and her guest gossiped over the village news, I listened and watched the visitor.

She must have been about forty years old, but her complexion was as clear as a young girl's, and she had masses of the most beautiful auburn hair I have ever seen. When she was gone I grew quite enthusiastic about her. "Tell me about her, Aunt Mary, I said. "She's the most attractive woman I've ever met here."

"Ain't she, though?" Aunt Mary answered. "I feel sometimes as though I'd like to eat her, she's so peachy-lookin'."

"Is she married?" I asked.

Aunt Mary laughed softly. "'Bout six months," she answered. "Come 'round to the back porch, an' I'll tell you 'bout it while we shell the peas for dinner."

When the peas were rattling into the big pan Aunt Mary began, "I guess Kathy Greenwood—that was her name afore she was married—was 'bout the most pop'lar girl here'bouts. She wa'n't pretty (Kathy's hair used to be real red), but she was allays so pleasant an' funny that ev'rybody liked her. An' the boys! my, there was allays a string of 'em taggin' 'round after her to picnics an' so-ciables. They used to say she had to stand 'em up in a row an' say, 'My mother told me to take this one' to decide which one should go home with her. I guess that's a little zaggerated, but anyways the boys was allays good-natured, an' Kathy never seemed to favor one more'n another."

"Well, I dunno how it happened, but somebody said that John Lucas said he'd bet he'd marry Kathy Greenwood. I never really b'lieved that John said it, though he wouldn't never tell whether he had or not. Luella King was awful sweet on John herself, an' I always mistrusted that she was the one that started the report, jest to make trouble between John an' Kathy. She told Kathy 'bout it herself, an' from that time on Kathy was ter'ble polite an' distant to John. But he had plenty o' spunk, an' he asked her to marry him jest the same. I guess Kathy didn't leave him in no kind o' doubt as to what her feelin's was on that subject. He waited six months, an' then, bless you, he asked her again. But Kathy's feelin's or her pride hadn't changed, an' 'twan't very long after that till he went West, an' 'bout a year later we heard he was married. So Luella King was left, after all."

"I used to wonder sometimes if Kathy wasn't sorry she'd sent John away."

"Jest ten years after he'd went away John come back, a widower, with two little twin girls, an' a nice sum in the bank. I can tell you they was more women folks in this village than Luella King that took a powerful sight o' interest in them 'pore little motherless twins." Aunt Mary laughed over the recollection. "It didn't do no good, for John didn't have eyes for no one hut Kathy, an' she had eyes for ev'ry one but John; an' the long an' short of it was that John proposed, an' Kathy refused him flat. I was all out o' patience with her. 'Kathy Greenwood,' says I, 'what do you mean by refusin' a man like John Lucas?'"

"'Aunt Mary Todhunter,' says she, 'I couldn't be stepmother to anybody's children.'"

"'They need a stepmother, Kathy,' says I; 'a good one.'"

"Kathy's eyes twinkled, but she said, real sober, 'There's plenty to say, 'Barkis is willin',' Aunt Mary.' An' I couldn't scold her after that."

"Kathy went on her way serenely, an' was jest as pleasant an' friendly as could be whenever she met John, an' he jest settled down to takin' care o' his girls, an' the other women gradually lost hope—all but Luella."

"Well, John's little girls grew up in the course o' time, an' had beaux. An' bein' twins, they had to be married the same day, which they did 'bout six months ago. Kathy was invited, an', will you b'lieve it, John proposed to her that very night, after the weddin' ceremony was over, an'—"

"She accepted him," I said.

"Yes, she did, right then an' there," Aunt Mary answered, "though I couldn't see for the life o' me but what she was the children's stepma jest the same. They was married two weeks later, for John thought they'd waited long enough."

"O' course, ev'rybody wondered, an' ev'rybody talked 'bout 'em, but it didn't seem to bother Kathy an' John at all. They was perfectly calm an' perfectly happy."

"I was in to Kathy's one day not long ago when Luella King come in. I jest thought to myself she was achin' to say somethin' mean to Kathy, an' sure enough, pretty soon she brought the talk 'round to Kathy's marriage. 'How could you bring yourself to do it, Kathy,' says she, 'after waitin' all these years?'"

"'Well,' Kathy says, right slow and sweet, 'I thought I'd rather have 'be-loved consort' than 'spinster' engraved on my tombstone.'"

"Luella she never said a word, but she rose right up, an' walked out o' the house, an' she ain't spoke to Kathy since."

"'But I don't mind tellin' you, Aunt Mary,' Kathy said when Luella was gone. (Kathy allays was honest as the day is long.) 'I dont mind tellin' you that I'm so happy I wish I'd said yes twenty years ago.'"

"'But is she honest enough to tell John?'" I asked, as Aunt Mary stopped.

"Yes," said Aunt Mary, "she is."—Alice Gay Judd.

Health.

AVOIDING EYE-STRAIN.—Eye-strain is said to be largely a defect of civilization. To counteract it, children should be encouraged to use their eyes at long range, and older persons should so train themselves. A teacher who has a surprisingly small amount of eye-strain among her pupils attributes it to her practice of having the scholars drop their work at the end of each hour and look out of the window. There is a contest over who sees the farthest. This rests and trains the eyes, and teaches observation. A woman who does fine sewing for her living found her eyes strained and weak. She was advised to drop her sewing every half-hour and look for a minute into space. Relief was quick, and the eye-strain disappeared. Near-sighted persons who hold their book or work close will ease eye-strain and lengthen their vision if they frequently remove their glasses and look at some object on their farthest horizon. The long-distance training will not, however, relieve eye-strain that comes from astigmatism, reckless disregard of the eyes, or from glasses that do not suit the sight.

CHANGE OF FOOD.—A free use of palatable fruit is essential. We must learn to distinguish between a real appetite and mere superficial taste. The taste of sugar, for instance, may be agreeable when there is no real need or appetite for it. It is well now and then to omit by turns the use of every article of food, even bread, thus preventing the system from becoming

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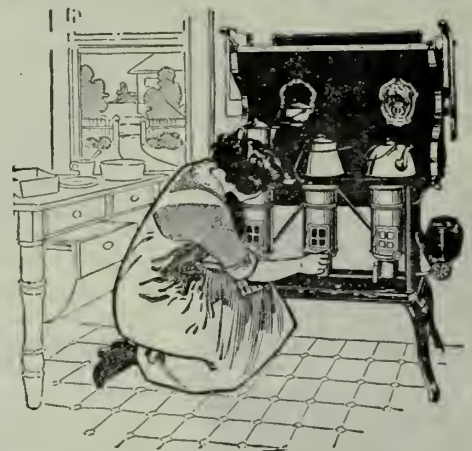
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COLOMBO, FOCHOW YOKOHAMA

AMERICAN OFFICE, 244 CALIFORNIA ST., SAN FRANCISCO

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That is one of the big advantages of the

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WICK BLUE FLAME
Oil Cook-stove

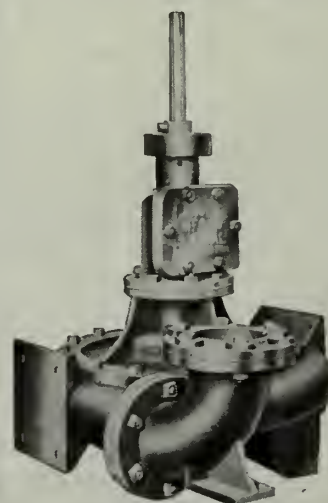
When you are through cooking you simply turn out the flame. There is no waste of fuel. And yet you can have full heat again when it's wanted, by merely striking a match.

The NEW PERFECTION COOK STOVE is much neater and cleaner than an ordinary range; no dirty fuel; no ashes. Ask your dealer for the New Perfection Stove. It bakes, broils, roasts or toasts.

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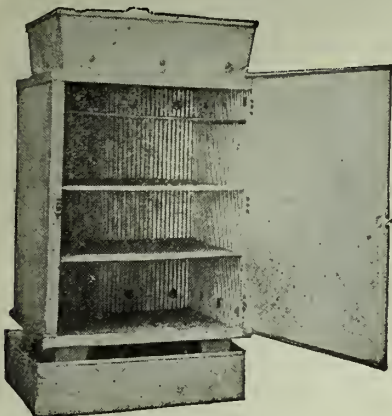
The Krogh New Water Balanced Vertical Pump contains many new and valuable improvements, same being fully explained in our Bulletin R-10, which will be mailed upon request.

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ing tied to any injurious routine. It would not be amiss to make an occasional meal of some fresh fruit or vegetable in its season, when best relished.

THE TEETH.—Many are careful to clean their teeth the first thing in the morning, but really the time of all others when it is most important to care for the teeth is just before retiring, as the greatest decay takes place between the last meal at night and the first one in the morning. The debris remaining on the teeth and under the gums begins to ferment in that soft, warm place, the mouth; acid is formed, and disintegration of the enamel takes place. The morning hour certainly should not be overlooked, and the few moments necessary to clean the teeth after each meal is well spent if one regards health and beauty.

BACKACHE.—Backache that is due to liver troubles may be relieved by toning up the liver and digestive organs generally. Butchers' meat should be eaten only in very limited quantities, if it is eaten at all. Alcohol, especially beer and stout, must be excluded from the diet. On the other hand, tomatoes, fresh vegetables, fruit, milk and soda, and cereals are suitable items of food, while liberal quantities of hot lemon-water would be better fluid to drink than tea, coffee or cocoa. A little extra care in regard to diet—the daily diet—would very quickly remove the pain or ache that has its origin in a sluggish liver.—Farm and Home.

Safe Way of Removing Stains.

Knowing how to remove ordinary stains by ordinary methods is a valuable asset. Much time and energy might be saved if these directions were remembered:

Iodine.—Alcohol or potassium or sodium hydroxide.

Cocoa or chocolate.—Cold or tepid water, then boiling water, Javelle water or oxalic acid.

Vaseline stains.—Hot water will set stains. Soak first in kerosene, then use soap and water.

Perspiration.—Wet in strong soapsuds and place in the sun. Use Javelle water if material is colored.

Vegetable or fruit stains.—When fresh, boiling water poured through the stretched cloth until the stain disappears.

Indelible ink.—Bleaching powder solution. Then wash out with ammonium chloride.—Kansas Industrialist.

Fresh tea and coffee.—Cold or tepid water, then boiling water poured through. If old, Javelle water or oxalic acid.

For dry paint or varnish, use olive oil or fresh lard to soften, then treat as the grease stain.

Tar, wagon grease and machine oil.—Soften with lard, then use soap and warm water; or wet the spot with turpentine and scrape off, sponging again with turpentine.

Mildew is a plant which grows on a material, and if left for a time cannot be removed. At first, lemon juice and salt may be used, or oxalic acid or acetic acid and the material placed in the sun.

Black ink.—Organic acids, as acetic, oxalic, etc., or inorganic acids, as hydrochloric or sulphuric, used in a 10% solution. When fresh it may sometimes be removed by cold or tepid water.

Iron rust.—A 10% solution of hydrochloric acid dropped on over hot water. Then put into hot water and rinse well in cold water. Salt and lemon juice paste, and lay material in sun, is another method.

Grass stains.—An old-fashioned method is to let molasses stand on the stain for a time and the acid of the molasses will remove the stain. Ammonia or kerosene is

good. If goods are unwashable, use alcohol, rubbing toward the center.

"Wot cheer, Alf? Yer lookin' sick. Wot

is it?" "Work! Nuffink but work, work, work, from mornin' till night." "Ow long 'ave yer been at it?" "Start to-morrer."—Punch.

Serve It Three Times A Day



You'll never tire of Ghirardelli's Ground Chocolate no matter how often you serve it. Always the same, year in and year out, it is the one beverage that pleases the entire family. And it is

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being highly nutritious. It is good for the young and grown-ups alike and is very strengthening. Next time you order from your grocer see that

Ghirardelli's Ground Chocolate

is on the list. Once you try it you'll say it is the best tasting beverage you ever drank. Ghirardelli's is the one and only original ground chocolate. It has been the Western home drink for over half a century.

Thirty cups in every pound can.

Buy it by the three pound can—it costs less that way.

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In order that you may try the deliciousness of Ghirardelli's Ground Chocolate we will send you a trial can free upon request.

Dependable Power



There's never a doubt when you use "Pacific Service." It is always there, day or night, ready in a second to do your instant wish. "Pacific Service" embodies the latest

thought in reliable, economical power. Why not install it and have your power question economically and satisfactorily settled.

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PACIFIC GAS AND ELECTRIC COMPANY

445 Sutter St., San Francisco, Cal.

THE MARKETS.

San Francisco, May 28, 1913.

(Unless otherwise noted, quotations represent prices paid to the growers.)

Cereals.

WHEAT.

The demand keeps up well in a jobbing way, though the larger buyers are getting in supplies from the North and there is little important business here. Outside markets are firm, and prices still tend upward, with a slight advance on most varieties.

California Club, cttl.....	\$1.67½ @ 1.70
Forty-fold	1.70 @ 1.72½
Northern Club	1.67½ @ 1.70
Northern Bluestem	1.77½ @ 1.82½
Northern Red	1.65 @ 1.80

BARLEY.

Trading in the May option closed at \$1.49, in line with the spot figures. Choice feed can hardly be had under \$1.47½, and the market is fairly firm, with a steady demand in the jobbing trade.

Brewing and Shipping...	Nominal
Choice Feed, per cttl.....	\$1.47½ @ 1.50
Common Feed	1.40 @ 1.45

OATS.

Oats show increasing firmness, with discouraging crop prospects, although prices are not quotably higher. Black is still nominal, with hardly any on hand here. Some trashy stuff is offered at extreme prices, but it is not believed that offerings from the country would bring much over \$1.60.

Red Feed	\$1.65 @ 1.85
Seed	Nominal
Grav	Nominal
White	1.70 @ 1.75

CORN.

An easier feeling is noted in both Eastern and California yellow, and last week's top figures can hardly be obtained. There is no great quantity offered here, but the demand is limited. Kaffir and Egyptian are little more than nominal, with no stock on hand.

Cal. Yellow	\$1.60 @ 1.65
Eastern Yellow	1.55 @ 1.60
Eastern White	Nominal
Kaffir	1.50 @ 1.55
Egyptian	1.70 @ 1.75

RYE.

This grain remains nominal, with a few small lots held at the old prices, but no movement.

Rye, per cttl.....	\$1.40 @ 1.45
--------------------	---------------

BEANS.

Bayos have been marked down a little, and colored descriptions in general remain very weak, with a rather heavy accumulation remaining here and no very urgent demand. White beans are firmly held at the recent advance, and while the movement is hardly as active as it was, there is still considerable inquiry from the East. About an average acreage is being seeded in the San Joaquin valley, while the south coast district has had insufficient rain, except in the main lima district, where the crop outlook appears fair.

Bayos, per cttl.....	\$3.25 @ 3.35
Blackeyes	3.15 @ 3.25
Cranberry Beans	4.70 @ 5.00
Horse Beans	2.35 @ 2.50
Small Whites	5.50 @ 5.60
Large Whites	4.90 @ 5.10
Limas	5.35 @ 5.45
Pea	Nominal
Pink	3.40 @ 3.50
Red Kidneys	3.90 @ 4.00
Mexican Red	4.00 @ 4.20

SEEDS.

There has been no change in prices, and the movement is confined to narrow limits in all lines.

Alfalfa	Nominal
Broomcorn seed, per ton....	\$27.00 @ 28.00
Brown Mustard, per lb.....	3½¢
Canary	6 @ 6½¢
Hemp	3 ¢
Millet	2½¢ @ 2¾¢
Timothy	Nominal
Yellow Mustard	Nominal

FLOUR.

Values are firmly held, but so far there has been no advance. Local business is running about as usual.

Cal. Family Extras.....	\$5.60 @ 6.00
Bakers' Extras	4.60 @ 5.20
Superfine	3.90 @ 4.10
Oregon and Washington....	4.90

Hay and Feedstuffs.

HAY.

More hay has come in during the last week than for some time previous, much of the arrivals being new alfalfa. This, though offered in large quantities, moves off readily, as old stocks everywhere had been well cleaned up. A price of \$10 to \$12 for loose alfalfa is reported at Stockton. Little new grain hay has appeared as yet, though a few cars of volunteer hay are offered. The local market is rather easy, and will probably remain so until new-crop prices are established. Loose grain hay in the interior is held around \$18, though dealers are buying nothing at that price. There is wide divergence of opinion as to the value of new hay, some districts having good crops while other important producing sections will hardly have enough for home use. Considerable damage will probably be done by this week's rain, as there is a great deal of hay cut in the fields. There is a heavy movement of new alfalfa to districts where crops are short, which are taking in large quantities to cover present and future feed requirements.

No. 1 Wheat, or Wheat and

Oat	\$19.00 @ 20.50
do No. 2	16.00 @ 18.50
Lower grades	15.00 @ 16.00
Tame Oats	16.00 @ 21.00
Wild Oats	14.00 @ 17.50
Alfalfa	12.50 @ 13.50
Stock Hay	9.00 @ 11.00
Straw, per bale.....	35 @ 80¢

FEEDSTUFFS.

Notwithstanding the firmness of the whole grain, rolled barley has been coming in rapidly of late, and a slight easiness has developed in prices, though this is not expected to last. All descriptions are in good demand, and values in general are firmly held.

Alfalfa Meal, per ton.....	\$22.00 @ 24.00
Bran, per ton	29.00 @ 30.00
Oilcake Meal	35.50 @ 36.50
Cocoanut Cake or Meal.....	Nominal
Cracked Corn	34.00 @ 35.00
Middlings	33.00 @ 34.00
Rollod Barley	30.50 @ 31.50
Rollod Oats	35.00 @ 36.00
Shorts	27.00 @ 28.00

Garden Truck.

VEGETABLES.

The movement of imported onions is about over, while new red stock from the river is offered in large quantities, causing a break in prices. Old yellow stock is gradually moving off, and prices are steady at the old level. Receipts of several lines of summer vegetables are much larger than before, causing considerable reduction of prices. Asparagus finds hardly as strong demand as for some time past, and with continued heavy offerings prices are much lower. Some strictly fancy stock brings as high as \$1, but the canners are picking up all they want at 50¢ or less. String beans and summer squash from the South have also been in excessive supply and cheap, but lighter receipts are expected for the next few days. Green peas have been marked down a little, and all but the finest rhubarb is lower. Cucumbers are appearing in larger quantities all the time, and show a further decline. Cauliflower has advanced a little from the low price of last week. A little Southern okra has appeared and finds a ready demand as quoted.

Onions: River, Yellow, cttl...	\$5¢ @ \$1.00
New Red, sack	50 @ 60¢
Garlic, per lb.....	4 @ 5¢
Cucumbers, per box.....	1.00 @ 1.25
Cabbage, per cttl.....	1.00
Carrots, per sack.....	75¢
Cauliflower, per doz.....	40 @ 50¢
Rhubarb, box	50¢ @ 1.25
Artichokes, crate	1.25 @ 1.50
Green Peppers, lb.....	20 @ 35¢
Green Peas, sack.....	1.50 @ 2.00
Asparagus, box	25¢ @ 1.00
String Beans, lb.....	2 @ 5¢
Summer Squash, box.....	40 @ 60¢
Okra, box	25 @ 30¢

POTATOES.

A few slight changes appear in old potatoes, the best river stock being held higher than Oregon, while offerings from the south coast are lower. New potatoes show a wider range, some fancy stock being higher, while general offerings are easy.

River Whites, cttl.....	50 @ 85¢
Salinas, cttl.....	60 @ 85¢
Oregon, cttl.....	50 @ 75¢
New Potatoes, cttl.....	\$ 1.00 @ 2.25

Dairy Produce.

POULTRY.

Arrivals of Eastern stock are a little larger, and there has been a sudden rush of California stock, causing a sharp drop in prices. All lines of young stock, as well as small and extra hens, are lower than for some time past, and it has been impossible to move the stock as it arrived. Other lines remain about as before.

Large Broilers, per lb.....	25 @ 27 ¢
Small Broilers, per lb.....	24 @ 25 ¢
Fryers, per lb.....	26 @ 28 ¢
Hens, extra, per lb.....	18 @ 19 ¢
Hens, large, per lb.....	18 @ 19 ¢
Small Hens, per lb.....	16 @ 17 ¢
Old Roosters, per lb.....	10 @ 12 ¢
Young Roosters, per lb.....	22 @ 25 ¢
Squabs, per doz.....	\$ 2.00 @ 2.50
Geese, per pair.....	1.50 @ 2.00
Ducks, doz.....	4.00 @ 6.00
Turkeys, dressed	22 @ 24 ¢
do live	21 @ 22 ¢

BUTTER.

While arrivals are fairly large, the week opened strong at an advance, with some demand for shipment. Arrivals are in excess of current needs, however, and values quickly dropped back to ½¢ above last week's quotations.

Thu. Fri. Sat. Mon. Tu. Wed.					
Extras	28	28	28	28½	27½ 27½
Firsts	27	27	27	27½	26½ 26½

EGGS.

Arrivals of eggs are decreasing, and the market shows more fluctuation than for some time past, with the general tendency upward. After a slight decline, extras have been put back to 23¢, while firsts and pullets are higher.

Thu. Fri. Sat. Mon. Tu. Wed.					
Extras	21	22	22	23	23
Firsts	19	19	19½	19½	21 21½
Selected					
Pullets.....	18½	18½	18½	19½	19½ 20

CHEESE.

There is little change this week, flats being firm and Monterey cheese steady at the old figures, while Y. A.'s have again been marked up.

Fancy California Flats, per lb.....	14½¢
New Young Americas, fancy.....	17 ¢
Monterey or Jack Cheese.....	14½ @ 15 ¢

Deciduous Fruit.

Strawberries continue very plentiful, and Longworths are lower, though some other lines are fairly firm and some of the Banner variety have sold up to \$5.50. Blackberries and raspberries are a little lower with larger supplies, and gooseberries also show a slight weakening. A few currants have been sold around \$1.50 per drawer, but are still rather scarce. Considerable rain damage to cherries is reported, and higher prices are expected for first-class stock, but so far values have tended downward, only the best Royal Anns bringing as high as \$1 per box. Apricots are a little lower, but still rather scarce, and few of the arrivals are very attractive. Peaches have been coming in all week, and move off readily as quoted. A few Arizona figs appear nearly every day, selling around \$4 per box. Apples receive little attention, but bring about the same prices as before.

Blackberries, crate	\$ 1.25 @ 1.50
Gooseberries, lb.....	6 @ 8¢
Raspberries, crate	1.25 @ 1.75
Strawberries:	
Longworth, chest	4.00 @ 4.50
Other varieties, chest.....	3.00 @ 4.50
Apples: Red, box	75¢ @ 1.00
Newtown Pippins	1.25 @ 1.75
Cherries:	
White, box	40 @ 50¢
Black, box	60 @ 75¢
Royal Ann	75¢ @ 1.00
Apricots, crate	1.25 @ 1.75
do box	75¢ @ 1.00
Peaches, crate	1.75

Dried Fruits.

Local packers have been looking over crop conditions throughout the State, and the general report is that the output will be comparatively short in nearly all lines. In view of this condition, the trade everywhere is taking more interest in the market, and while some peaches may be held over, there is a fair prospect that other lines will be well sold out. Apricots are almost out of the market, and packers are offering 12¢ for new crop, with some business reported at this figure, though growers are in no hurry to sell. No sales of new peaches by growers are reported, and values are still uncertain. Apples, which have been neg-

lected most of the season, find a fair demand, and most of the stock is now controlled by packers. Prunes are still in fair demand, and packers are buying to some extent in the country, though growers are reluctant to sell. The larger sizes are almost entirely cleaned up. Packers are counting on a world's output about equal to that of last year, with rather light output of the larger sizes, while for small sizes prices are not expected to go above those of last year. The Santa Clara crop is very poor, but in other parts of California, as well as in Oregon and Washington, a fair crop is expected. The raisin market stands about as before, negotiations between the Associated Company and the packers having been broken off. The Associated is said to have shipped its first carload for export. The New York Journal of Commerce says:

"An increasing demand for California prunes on the spot is noted, but it is mainly for small lots to cover present needs of consumption and preference is given to sizes above 70s. The market on 40s, 50s and 60s is strong, and prices have an upward tendency. Local buyers do not seem to be much interested in shipments from the Coast, but holders there are firm in their views, being supported by a demand from Europe. The uncertain outlook for fruit crops of all descriptions on the other side, as a result of unfavorable weather conditions during the spring months, is creating a better inquiry from the other side for all kinds of California dried fruits, and especially for apricots. The prospects of a short crop of the latter on the Coast and the close clean-up of last season's product in both first and second hands, impart a firm tone to the market, and the trend of prices is upward. One of the leading packers notified his New York agents that he was holding 1913 apricots for September shipment at 13¢ for choice, 13½¢ for extra choice, and 14¢ for fancy, f. o. b. Coast. There are considered extreme figures, however, as, according to late advices, there were sellers of Royals of at least a quarter of a cent under these figures. Peaches on the spot are getting a little more attention in a small way, buyers being inclined to anticipate wants because of the light offerings here and the upward trend of prices on the Coast. The market for raisins of all descriptions on the spot or for future delivery remains steady, but there is comparatively little demand, the prospect of a combination between producing and packing interests being without influence as yet to stimulate buying of futures or of spot goods."

Evap. Apples, per lb.....	3 @ 4¢
Apricots, new crop.....	12 ¢
Figs: White	Nominal
Black	Nominal
Calimyrna	Nominal
Prunes: 4-size basis, spot...	3 ¢
do 1913 crop	3½ @ 4 ¢
Peaches	3½ @ 4½¢
Pears	4 @ 7 ¢
Raisins—	
Loose Muscatels in sweatbox	2¾¢
Thompson's Seedless.....	5 ¢
Seedless Sultanias	3 @ 3½¢

Citrus Fruits.

The Eastern auction markets are absorbing all the oranges being sent them from California at good prices, so that those fortunate enough to have fruit to ship are receiving good returns. At New York on Monday, May 26th, auction prices were, for navels, from \$2.75 to \$5.25 per box; for bloods, \$2.60 to \$3; for seedlings, \$2.85 to \$3.25; for valencias, \$3.25 to \$5.95. New York prices were a trifle higher than other auction points, but in all of them prices are very good.

Navels are about all shipped, and sweets and seedlings are going out rapidly. Valencias are also being shipped, but as the sizes are small and the crop very light, growers are not anxious to rush them on the market at this time. Prices in southern California are around \$4 and \$4.50 per box, f. o. b., for best valencias. The lemon market is very strong, with but little fruit going out; prices are around \$6 and \$6.50 per box, delivered.

Shipments from southern California for the season, up to May 25th, were 10,156 cars of oranges and 1,341 cars of lemons, as against 21,280 cars of oranges and 3,178 cars of lemons to the same date last season.

While no good estimate can be made at this time as to next year's crop, yet growers say that if the June drop is not more than average, they will have a good yield.

While the increasing supplies of summer fruit tend to curtail interest in cit-

rus goods, the demand at San Francisco is keeping up on about the same scale as for some weeks past. Orange prices show a wider range, according to quality, fancy navels and valencias both being higher. Only a few lemons can be sold at the top figure, and limes are a little lower.

Oranges, per box—

Valencia, choice to fancy..	\$ 4.00@ 5.50
Navels, good to fancy.....	2.50@ 4.50
Grapefruit, seedless	2.50@ 5.00
Lemons: Fancy	6.00@ 7.00
Choice	5.00@ 6.00
Lemonettes	3.50@ 4.00
Limes	4.50@ 5.50

Nuts, Honey, Hops, Etc.

NUTS.

The nut market remains nominal, the Coast trade having to use imported goods to meet current needs, while values on the new crop have not been established. All indications are for high prices.

Almonds—

Nonpareils	17½c
I X L	16½c
Ne Plus Ultra	15½c
Drakes	12½c
Languedoc	11½c
Hardshells	8 c
Walnuts, 1912 crop—	
Softshell No. 1.....	16 @16½c
Hardshell No. 1.....	15 @15½c
No. 2	10½c
Budded	17 c

HONEY.

There is no movement of any consequence at present, the old stock being pretty well cleaned up, while the new crop is not yet coming in. Values are unchanged.

Comb, white	15 @16 c
Amber	11 @12 c
Dark	9 @10 c
Extracted, white	8 @10 c
Amber	6½ @7 c
Off Grades	5 @6 c

BEESWAX.

Beeswax is quiet and nominal, with little demand and all supplies closely held.

Light	30 @31 c
Dark	29 @30 c

HOPS.

Favorable crop reports have been received from several California districts. Values stand nominally as before, with no trading of any consequence.

1912 crop	12½ @18 c
1913 contracts	13 @15 c

Live Stock.

Most of the cattle now coming in are grass-fed, and values have accordingly been marked down a little. Otherwise prices remain about as before, hogs being rather easy at the recent decline.

Grass-fed Cattle—

Steers: No. 1	7 @ 7¼c
No. 2	6¾ @ 7 c
Cows and Heifers: No. 1....	6 @ 6¼c
No. 2	5½ @ 5¾c
Bulls and Stags.....	2½ @ 4½c
Calves: Light	7 c
Medium	6½c
Heavy	5 @ 6 c
Hogs: Grain-fed, heavy....	7 @ 7¼c
150 to 250 lbs.....	7¼ @ 7½c
100 to 150 lbs.....	7 @ 7¼c
Prime Wethers	4¾ @ 5 c
Ewes	3½ @ 3¾c
Lambs: Suckling	5½ @ 6 c

DRESSED MEATS.

Steers	12 @12½c
Heifers	11 @11½c
Veal, large	10 @11 c
Small	12½ @13½c
Mutton: Wethers	11 @11½c
Ewes	10 @10½c
Suckling Lambs	11½ @12½c
Dressed Hogs	12½ @13 c

WOOL.

While some sales have been made around the prices quoted, the market is really too dull for any values to be very well established, and buyers are holding off as much as possible until the tariff question is finally settled.

Spring clip:

Southern mountain, free..	9 @12 c
Northern, year's staple...	14 @16 c

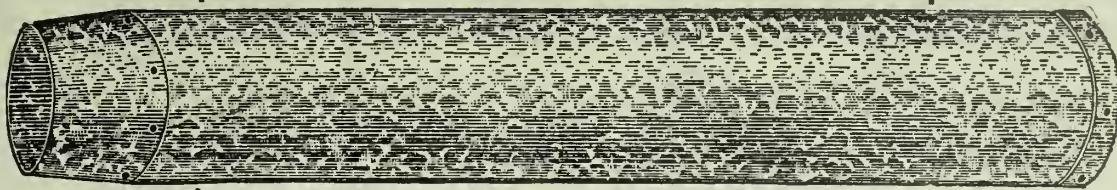
HIDES.

The hide market shows no change, being extremely dull, with prices nominal.

Heavy Steers, over 56 lbs.	14 c
Medium	13 c
Light Steers, under 48 lbs.	12 @13 c
Heavy Cows, over 50 lbs..	12 @13 c
Light Cows, 30 to 50 lbs..	13½c
Kip	14 @15½c

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Veal	17 @18½c
Calf	17 @18½c
Dry—	
Dry Hides	24 @25 c
Dry Kip, 10 to 15.....	24 @25 c
Dry Veal, 5 to 10.....	29 c
Dry Calf, 7 down.....	29 c
Horse Hides—	
Salt: Large	\$2.25
Medium	1.75
Small	75c
Colts	25 @ 50c
Dry	75c @ 2.00

HORSES.

Strictly first-class all-purpose horses are in good demand, the local retail market having been quite active for the past week. Ordinary stock, however, is quiet, and prices in general show a downward tendency.

Heavy drafters, 1700 lbs. and over	\$300@350
Light Drafters, 1500 to 1650....	225@250
Chunks, 1350 to 1500 lbs.....	200@225
Wagon Horses, 1250 to 1350....	150@175
Delivery Horses, 1050 to 1250..	80@105
Desirable Farm Mares.....	75 @ 90

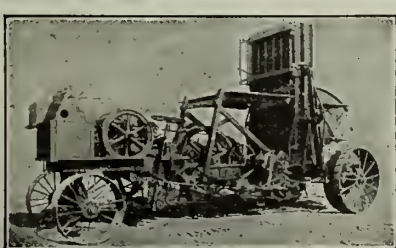
MULES.

1200 lbs.	\$200@250
1100 lbs.	150@200
1000 lbs.	125@175
900 lbs.	75@125

PUBLISHER'S DEPARTMENT.

A new "Making the Farm Pay" has just come to our desk. It is written by C. C. Bowsfield, and he knows about what he writes. Every phase of farm life is considered. Intensive and extensive farming are ably handled. The author contends for the smaller and better-tilled farm, for business brains in agriculture, for more money, better crops, and less burdensome conditions. The book contains about 300 pages, bound in cloth, is published by Forbes & Co., 443 South Dearborn St., Chicago, and the price is \$1 per copy, net.

In this issue we print the regular weekly letter from our editor, who is "Out in the World." This letter caught the mail at Gibraltar and was sent off from the steamer that carried the writer from New York to Italy. Dispatches from Europe state that the Commission, of which Prof. Wickson is a member, arrived safely at Rome, transacted business, there, and we suppose it is now on German soil.



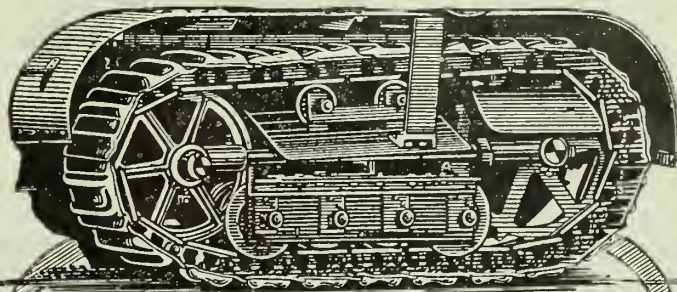
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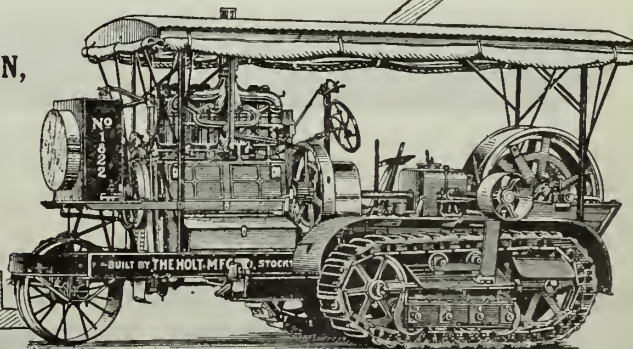
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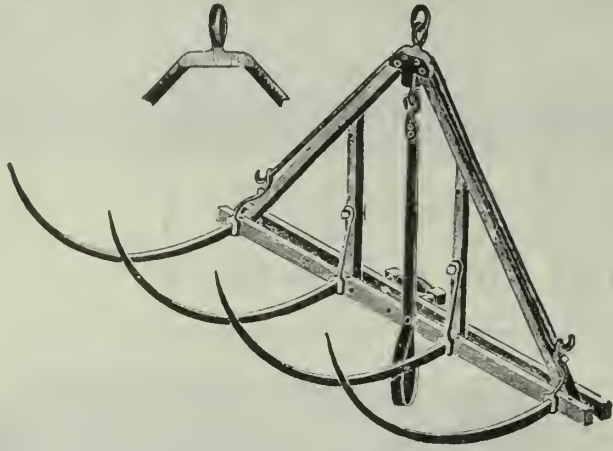
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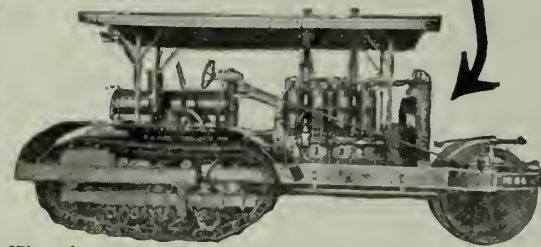
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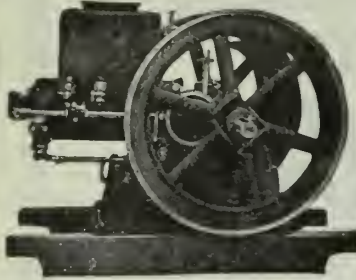
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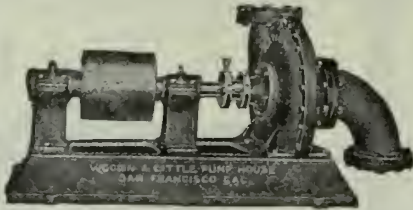
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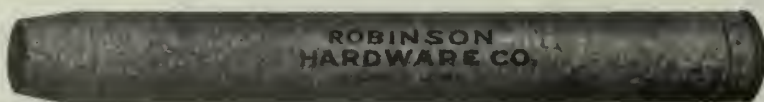
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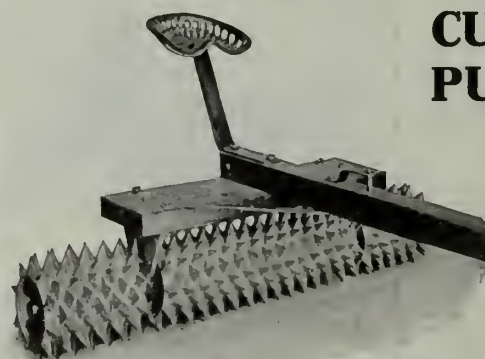
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THE PACIFIC RURAL PRESS

Vol. LXXXV. No. 23.

SAN FRANCISCO, SATURDAY, JUNE 7, 1913.

Forty-Third Year.

ORANGES AT SEVILLE.

[Written for the PACIFIC RURAL PRESS by E. J. NEWCOMER.]

The city of Seville, in southern Spain, has long been famous for its oranges, even as long ago as the days of Shakespeare. A Californian, however, will probably suffer disappointment when he first makes their acquaintance, for beside our fine Washington Navels they look small and unattractive. But the flavor of a ripe Seville orange can hardly be excelled anywhere, though the almost universal presence of smut on the rind, and of seeds inside, may detract from it somewhat.

Of the oranges grown extensively in the province of Seville, there are only two varieties to be distinguished: the sweet orange and the bitter orange. The former is sometimes called the Chinese orange. The bitter orange is used for making marmalade and candied orange peel, while the sweet is marketed for table use.

The orange groves about Seville are mostly small, not over ten or fifteen acres in extent, though occasionally there are larger ones. The trees are generally planted in rows about 20 to 25 feet apart. Sometimes, however, especially where the trees are on a hillside or irregular patch of ground, they are scattered about indiscriminately. The usual method of propagation is from the seed, and the trees are allowed to grow up rather close together, in a sort of nursery, sometimes until they are four or five years old. They often reach a height of 10 or 12 feet in these crowded nurseries, and after being planted out always remain rather tall and spindling. The trees are transplanted in winter, and their age at transplanting is, oftener than not, determined by the opportunity the owner has of selling them. The roots are cut back to within a foot of the trees, and in one nursery that I visited, the owner did not consider it necessary to prune back the tops. He said the trees grew all right, and evidently they do, after a fashion.

The orange groves of Seville are given very little care, compared with that bestowed upon California groves. Cultivation is often carried on by hand, and frequently grass and weeds are allowed to grow up between the trees. This growth takes the form of a cover crop in some groves, but there is no scientific use of this as a fertilizer. In fact, the use of fertilizer in any form is not at all general. The trees

are not pruned a great deal, and are allowed to grow rather tall and into irregular shapes. Irrigation is, of course, necessary, as the Spanish summers are very warm and practically rainless. The water frequently has to be drawn from wells by horse-power, or occasionally by pumps, and is distributed through the grove by means of permanent main conduits built of masonry, and temporary ditches dug in the soil. Frost rarely does any harm, and no preparations for protection against it are necessary.

While the Sevillian orange trees have fewer insect pests than those of California, there is one small reddish scale insect which the Spaniards call *piojo rojo*, or *polroi*, that is of great importance. It is so uni-

versally present that I did not see a single grove in the vicinity of Seville whose trees had green, healthy-looking leaves. Like our red scale, this little insect infests both leaves and fruit, and I have seen the latter literally covered with it. The pest could undoubtedly be controlled by fumigation, and this method of control is known in Spain, but there are no organized companies for doing the work, and the individual grower cannot afford an outfit. One exporting company in Seville recommends the growers to spray their trees with a mixture of carbonate of soda, copper sulphate, soap, and water, and it has printed circulars giving the exact formula and full directions. But I was told by the director of the Seville Experiment Station that this mixture was not effective. It will thus be seen that the business of combatting scale insects is still in its infancy in this part of Spain. The Spaniard, as a rule, has not yet come to realize the value of having scale-free trees, and prefers to do nothing, being confident that in a few years the scale will disappear. Even if



A BUNCH OF NORTHERN CALIFORNIA ORANGES.

it does, the money loss in the meantime will be enormous.

Another insect worth mentioning as of particular interest to Californians just now, is the Mediterranean fruit-fly. This insect occurs commonly in Spain, and I was told that its chief damage was done to Sevillian oranges in the month of October. It appears to be very scarce during the winter, when most of the oranges are picked, and is, I believe, of far less importance in the province of Seville than about Malaga and Valencia. Many Sevillian growers do not even know there is such a pest.

(Continued on Page 637.)

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CALIFORNIA WEATHER RECORD.

The following rainfall and temperature record is furnished the PACIFIC RURAL PRESS by the United States Department of Agriculture Weather Bureau, at San Francisco, for the week ending at 5 p.m., Jun. 3, 1913.

Stations.	Rainfall Data.			Temperature Data.	
	Past Week.	Seasonal to Date.	Normal to Date.	Maximum.	Minimum.
Eureka .....	.00	34.37	45.15	60	44
Red Bluff .....	.10	18.34	24.63	96	56
Sacramento .....	.26	7.91	19.97	90	52
San Francisco ..	.02	11.95	22.13	78	50
San Jose .....	.11	6.34	16.73	88	48
Fresno .....	.32	6.22	9.62	90	52
Independence ..	.02	4.13	9.48	86	44
San Luis Obispo ..	.24	7.97	20.45	90	46
Los Angeles .....	.04	12.83	15.57	72	52
San Diego .....	.08	5.99	10.01	68	54

The Week.

The open season for cactus has come. Apparently it has been here for quite a time, but the real, genuine cactus season, that is, for the salesman to get in his main work, is in the summer. That is just the opposite proposition to other crops in California, for they have to be planted after the rains start, before they quit, or some time between, but, for a contrast, they tell us that the cactus, when it goes into the ground, wants moderately dry soil, instead of wet or quite moist, it wants hot weather instead of cool, and summer instead of winter. It was heralded when Burbank first made public the development of the plant that it would turn the world upside down, and if its achievements are in line with its requirements it surely ought to raise Cain with the present farm methods as they relate to stock. But that is not what started us off on this tack, rather it was a cry for help from one of our readers who has the cactus all growing and the cows, horses, hogs and chickens to feed it to, and now he wants to know how he is going to go about feeding what he has. We have had lots of talk about growing it, how it would grow and how it would produce, the difference in varieties, etc., but now comes the demand for help after we have got it. Don't tell us how it ought to be harvested and how it ought to be fed, but any readers who have practiced feeding it on a commercial scale, or have got their chickens, their cows or their hogs to think it was the greatest thing ever, will please tell us just the way they handle it. The first few years were devoted to making cactus produce more cactus, so that could be planted and produce still more cactus. Now it is all over the State, and the next step is to know, not what to do, but how to do what is to be done in the way it should be. Who will speak up?

Things Changing.

The cactus will very probably be a small-farm proposition in large part, and whether it makes any radical change in conditions or not, conditions are going to change and are changing in the stock lines which cactus is supposed to affect. It

is noted as a far-reaching fact that for the first time in years Belle Fourche, South Dakota, has shipped beef cattle to the stockyards. Once this was one of the largest stock shipping points in the United States. When the large herds broke up, it went down; when irrigation came and the country was cut up into small farms the stock shipments ceased altogether. A week ago they started again, but on a new basis. Instead of grass-finished steers in the fall, four ears of top quality corn-finished bullocks went out, bringing \$8.10 and \$8.40 per hundred. California is also losing her large ranges, the better the land the more likelihood of its going from range to irrigated farm. It is more productive land than that around Belle Fourche, and therefore can produce still more beef than that district, which is expected to send out 1000 ears a year in five years time. The importance of the small farming operations and their safety is also confirmed by the results of the tariff agitation on the wool and mutton business. Sheep on the small place mean mutton to the fore, on the range, wool. The tariff is hitting the range man an awful crack, but by the way Shropshire breeders are sending East for new, good blood, they are not hurt.

Out in the World.

[BY THE EDITOR.]

[In our last issue Professor Wickson indicated some of the spiritual phases of the assembling of the American Commission on Agricultural Co-operation and Rural Finance in New York and its efforts to find itself aboard ship after sailing for Italy. In this issue he refers rather more definitely to these unique nautical transactions.—ASSOCIATE.]

This floating college of agriculture and economics is surely getting itself into good trim for its formal opening in mid-Atlantic. It has admitted four classes of students, as designated in our last writing. It has a full outfit of teachers and more janitors, in the form of stewards and stewardesses, than any landlubber's university we ever heard of. All these janitors have plenty of time to perform educational duties, because the attitude of the Atlantic gives them no field for their proper functions. At this writing we are about 2,000 miles southeast of New York and have been six days getting here. During all this time and distance the ocean has been as smooth as San Francisco bay in June and has shown the color of Tahoe-blue continuously. When we recall the hardships of Columbus in getting across these waters westward and contrast the anger of his crew with the joy of the deck steward and his assistants as they ply the passengers with tea during the long stretches of the dreamy afternoons, we cannot escape the conclusion that it is a gladder thing to discover Europe than America, and rejoice that we are called to the business of discovery in the twentieth and not in the fifteenth century. Of course, the present attitude of the Atlantic favors rehearsing the acts which we are preparing for the agitation of Europe: if it were not so we would be more agitated ourselves. As it is, we compare ourselves not with Columbus, but with Diogenes—paddling his tub across a millpond to test the honesty of the fisherman sitting upon the farther shore.

No Co-operative Loan Outfits Discovered.

In the effort of this Commission to ascertain what we have at home before seeking things abroad, it must be confessed that no co-operative organizations for the purpose of making loans to farmers are reported in operation by any of the delegates. We have no societies which ac-

cumulate savings by their own members for making loans to other members—that is, we have none of these in agricultural lines except a few in connection with Jewish farming colonies near New York. These are the affairs which have accomplished so much in Europe, and we are to see them and form an opinion as to their adaptability to American conditions. It has been shown at our meetings that certain combinations of philanthropic motive and business methods are relieving clerks and mechanics from the loan sharks in Eastern cities by making small loans to some people and receiving small savings from others to be used in such loans—thus making one hand wash the other, as it were, co-operatively yet not truly so, because profits are not distributed to members, but go to stockholders in regular banking fashion, and interest is high enough to produce profits. These concerns are, however, not working in farming districts, and though commendable as compared with loan sharks, they do not give as low interest as the no-profit co-operative banks which we expect to find in operation among European farmers.

A Near-Agricultural Bank.

Failing to find any co-operative agricultural banks in the United States, so far as this Commission knows, much interest was manifested in the work of a member of the Commission, J. C. Caldwell, of Lakefield, Minnesota, who has manifested much genius and enthusiasm in the organization of his village and country neighbors into all sorts of co-operative efforts: churches, stores, elevators, coal yards, lumber yards, etc.—whether the village blacksmith and doctor have escaped his net was not stated. He is a banker, and a local national bank is the center of his system. This bank he endeavors to operate from an agricultural point of view by inducing as many farmers as possible to buy the bank stock; enough of them owning ten shares each to be eligible as directors, the others owning fewer shares; and in fact he has all of the stock distributed among the farmers of the region. The bank is, of course, operated under the laws for national banks, but favors are extended to farmers rather than to commercial borrowers, and the local estimate of agricultural security is at a high pitch. This seems to give an uplift to farming sentiment, and by various co-operative trading, both in purchase of supply and sale of products, which the bank supports, the farmers seem to be getting about all there is in life, both in his heart and pocket. This is, of course, not the work of an agricultural bank such as we expect to see in Europe, but of an American national bank agriculturalized, and it affords opportunity for concentrating banking benefits upon farmers, not only in the attitude of the bank toward the local farming interests, but by distributing the ownership of the stock among farmers and by returning to them the profits which their investments earn, the whole thing becomes agricultural finance, in a way. We mention this because we are aware that California has national banks owned largely or wholly by farmers. We are not aware that any of them has manifested such deep and wide agricultural sympathies and activities as has the bank which Mr. Caldwell seems to be running from an agricultural point of view and which has achieved such strength and popularity that he has to protect his position against outside capitalists who are trying to buy in by getting possession of the widely distributed stock of the bank by bad stories and good offers for it.

Mr. Caldwell is a Scotchman of the optimistic and altruistic type, of good weight, moon-faced, blue-eyed, and placid, with nothing of the "hoot

mon" in his makeup and yet canny and persistent. He evidently is, in his own personality, the greatest factor in the success of his endeavors, and no amount of theory and exhortation would come through without it. He scorns the technicalities of the economists who endeavor to classify his work as partly pure and partly unpure co-operation. His idea of co-operation in agriculture is getting farmers together on a financial basis, and if they will not come one way, try them on another. The result is that he catches them going and coming, and he exalts his mission like an apostle. The Commission generally accepts him as one.

California in a Class by Herself.

In Branch 3, dealing with distribution, which is defined to be buying and selling farm supplies and products, an effort has been made to ascertain what co-operative efforts exist in the United States to do these things. A resolution was passed calling upon all interested in Branch 3 to hand to the chairman lists of such co-operative concerns known to them. We put in a list of ten such things in California, just to start the discussion, and it appeared afterward that ours was the only list which the chairman received: other delegates did not seem to be sure enough of their possessions to inventory them. It also appeared afterward that California surprised no one by being alone. This State has come to be a synonym for achievement in this line. It also appeared that California is counted so different in people and in products that all other States and provinces are more anxious to hear of little things done elsewhere, considering them to be more in their class and therefore more instructive. They knew of California fruit-packing, shipping, and selling organizations from the ample accounts published in Government reports and popular magazine, and admire the results, but seem to have little expectation of being able to do things our ways. This being their attitude, we simply pointed with pride, indicated sources of information, and accepted their ready verdict that California stands in a class by herself in these matters, simply advising them that California can show failures as unique and great as her successes, and that if anyone wishes to thoroughly understand them all, a full year's local study and observation is the lowest rate at which full wisdom can be had.

California Co-operations Impure.

In the discussions of the character of California's co-operative undertakings, Professor John P. Coulter, one of a group of neo-economists hard at work on the affairs of the Commission, paid a tribute to the California organizations for promoting production and distribution of products, by citing their work and placing it as an exemplar upon which several other States have undertaken organized effort. He took the position that these organizations are not "pure co-operation" because they give members votes according to shares or acreage, and because they distribute profits to stock-owners and do not refund them to shippers pro rata according to the business which they bring the association. Pure co-operations do this; also each member has one vote, no matter what his interest may be, and capital receives interest but no share in the profits. We have no space to state the facts more accurately now, nor to discuss them. It is, however, true, we believe, that if California had undertaken co-operation of a purer or more ideally altruistic type, we could not have reached anything like the accomplishment now realized, imperfect and inadequate as they are.

Government Aid to Development.

In the discussion of the small things which other States have done and in which the body of the delegates manifested most interest, we were forcibly reminded of our own State efforts of thirty years ago, and as we are not sent out for such historical studies, we simply tuck them up our sleeve. The only other and different thing was the use of State funds for developing local producing enterprises and selling the products thereof by the Government promoter. This was reported by the delegates from the great new lands of the Canadian provinces, and though these operations apparently have no possibility of applicability to the States of the Union, a brief statement should be made concerning them. It seems that the provincial government will finance a co-operative farmers' enterprise like a creamery or grain elevator whenever the farmers in an accepted locality subscribe and pay in fifteen per cent of the cost of such establishment. Thus the Government furnishes eighty-five per cent of the required capital and takes this amount of the stock of it. The government sells the product and makes advances to the producers if the sale is delayed. It will also turn over the affair to those who supplied the first fifteen per cent as soon as they can pay back the government investment, and it desires them to do so as soon as they are able. The government charges the enterprise six per cent on its investment and turns over all the rest of the proceeds of the produce sales, to be distributed to the producers pro rata. The government also has established demonstration farms and bought improved stock for them. This stock is sold to farmers from these farms on easy terms. It also sends out improved stock on demonstration trains, selling from the trains to farmers in the districts visited. This, of course, is pretty affectionate paternalism and might seem to be at enmity with the upbuilding of private enterprises, but it must be remembered that these provinces are very new and very large and very anxious for development and are willing to pay bonuses for it. No such attitude was reported from any of our State governments.

What Shall the Commission Do?

This is a question which receives much discussion in all conversational knots on the decks, and we are going day and night at about thirteen knots per hour, and we see no more end to the discussion than we do to the ocean around us. The hundred more or less official components of the Commission have just as many different views and visions, and we cannot undertake to follow them without getting hopelessly cross-eyed. It seems, however, clear enough that no final agreement will ever be reached, for no matter what the official report contains or excludes, there will be a hundred people continuously reporting to the public ear during all the rest of their natural lives. There is, however, a concrete point to the current discussion, and the question is: "Shall this Commission report for the full regeneration of rural life or shall it report on rural finance, from the improvement of which all blessings may be expected to flow?" Of course, the deep-seers hold that the most valuable thing in the country is men and women, not money; therefore, our ultimate purpose should be to make better men and women, not to make cheaper money. On the other hand, the materialists argue that the best way to awaken higher conceptions of duty and responsibility in man is to give him a check-book; therefore, improve manhood by giving the individual a chance to get ahead of his interest and taxes, and you have him redeemed, for this world at

least. This is the issue, and we count it an irrepressible conflict of ideas. It is insoluble. We have no more use for it in these letters than we have for reverted phosphate in a health drink.

The U. S. Commission Factor.

Like every other red-cheeked pippin, this American Commission has a core, because it is assembled around another organization known as the United States Commission, which we incidentally mentioned in an earlier letter, but which should be more definitely noted. This U. S. Commission consists of seven persons, whose names were included in the list published in the *PACIFIC RURAL PRESS* of May 17. This Commission has rather more definite instructions as to what it must do than has the larger body of which it is a part. For the Act of Congress providing for its creation says this is its purpose: "To investigate and study in European countries co-operative land-mortgage banks, co-operative rural credit unions, and similar organizations and institutions devoting their attention to the promotion of agriculture and the betterment of rural conditions."

Some of the members of the U. S. Commission hold that under these instructions they are expected to report definite plans by which the farmer may place himself in position to get money for extension purposes at as low rate as corporations for banking, transportation, manufacturing, get it for the extension of their business. They hold that if this is not done the United States, from President Wilson down to Constable Jones, will be disappointed to madness and will hold this Commission in execration. It will not do to report great ideas for uplifting manhood and citizenship. The needs of agriculture must be expressed in terms of money and how to get it in cheapness and abundance for agricultural development and progress. Some discerning reader may argue that the politicians, having promised much, are disposed to make this Commission the goat to graze upon an insoluble problem. However this may be, it seems clear that the goat is going to bite hard at it, even if it should be a stick of dynamite. We may expect, then, that the core will have seeds in it, even if the pericarp does prove to be a juicy pulp of generalities.

Sunday on a Ship with a Mission.

This ship has a mission as well as a Commission, and is therefore very heavily laden in the state-rooms as well as in the hold. Incidentally, the latter is full of improved American agricultural implements for the awakening nations of south-eastern Europe and Asia Minor, so that we may claim that the hold is literally full of missionaries also—these last especially fitted to turn the earth upside down, but we will not press that point; that is the job of the camels, perhaps. What we have especially in mind is the fact that, although no one knows what day of the week it is, unless he is keeping record of the ship's run, everybody knows when Sunday comes because of the length and frequency of worshipful exercises. This is in good part due to the presence of a pilgrimage of priests bound for Rome, on a mission or to give account of one, we know not which. Masses begin at 5:30 a.m. and for them a suitable outfit is shored up in the main cabin. They continue until the official services of the Church of England are held in the main saloon, beginning at 10:30 under command of the captain of the ship, as provided by the British shipping laws, we presume. In the afternoon, services are held by various bands of dissenters from established usages, and at 9 p.m. the American Commission holds religious services of its own.

Native Walnuts in the South.

[By Professor R. E. SMITH, of the University of California.]

[The great development of the walnut industry in California is indicated by the rapidity with which the bulletin "Walnut Culture and Walnut Blight," of the University of California, has been exhausted. To fulfill the demand for information on the subject, we have published at intervals extracts from this bulletin, the last, which was upon the native black walnut of the northern part of the State, appearing in the issue of April 12. The characteristics of the southern black walnut are now described. This is an important subject, as black walnut roots are recognized as being es-

shim, near the north opening of the Cajuenga pass, and in all canyons through this range on both sides to its northern extremity near Hueneme. The tree is abundant along both branches of the Southern Pacific railroad between Burbank and Ventura and in the intervening country. That is to say, it occurs in the vicinity of Chatsworth, Simi, and Moorpark, in the hills north of the latter places, in the next valley north near Newhall and on down the valley through Camulos, Fillmore and Santa Paula, and in the foothills to the north of this valley (Santa Clara valley of the south). Going farther north, the tree is not seen near the railroad, but is abundant in the foothills up in the Ojai valley back of Ventura and seat-

formed. It is not, as is popularly supposed, a dwarf or slow-growing tree, except in so far as it is influenced to develop in this way by the fact that it is able to and frequently does grow upon dry, exposed hillsides rather than in deep, rich, moist soil, to which the original groves of the northern California type are confined. In a similar situation, the southern California tree grows rapidly and vigorously, forming particularly a very thick trunk, but with a round, bushy top rather than with a single, erect, continuous central axis. Along the road between Ventura and Nordhoff and in the hills about the latter vicinity, trees of extremely great trunk diameter may be seen, but the tops are very broad, low and bushy. Professor Jepson has well characterized this form as "elephantine" in comparison to the erect, arboreal habit of the northern type.

The nut of the southern type varies considerably in size on different trees, but in general it is much smaller than that of the northern type.

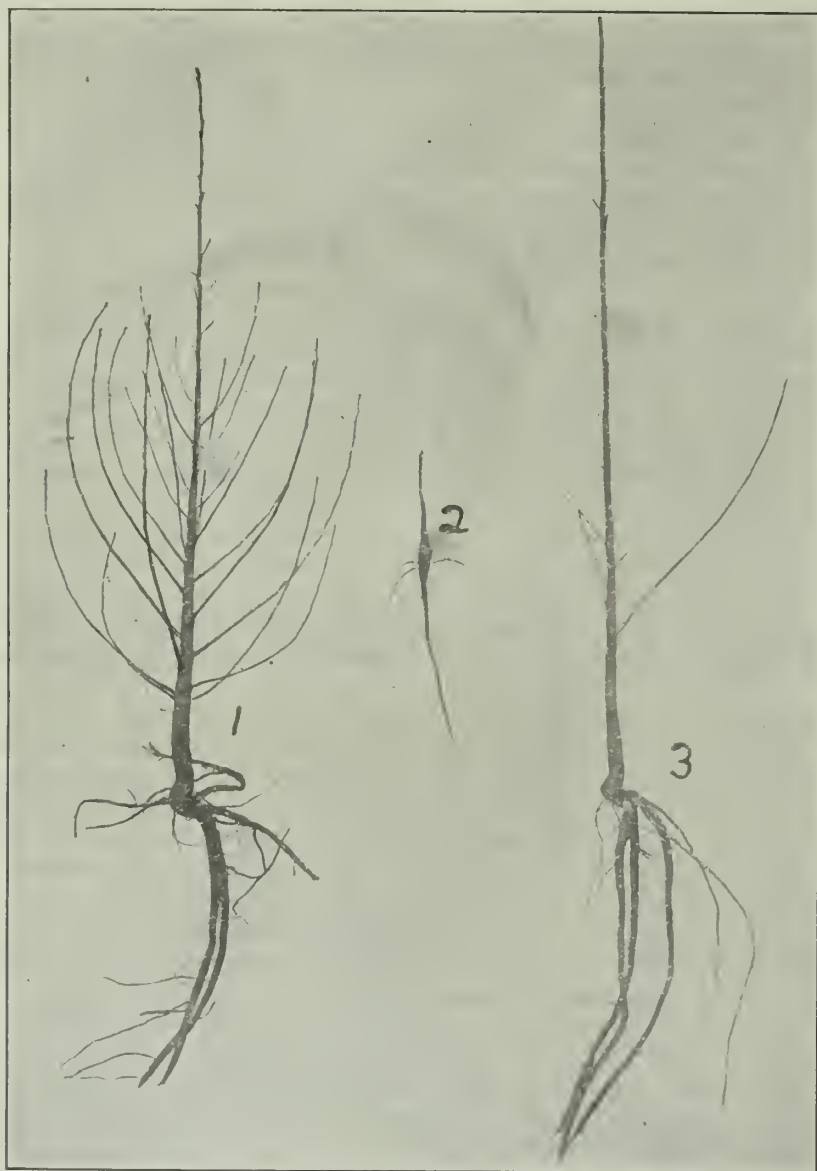
Relationship Between Southern and Northern California Types of Black Walnut.—Assuming that the southern California type of black walnut is indigenous to the region where it is found, which fact there is no reason to doubt, the question arises, whence came these three, isolated, original groups of the northern tree? It is most natural to agree with Dr. Jepson that these northern trees were planted by the Indians many years ago, either intentionally or by chance, with nuts which they had brought from the south for food and exchange. Each of the three localities is known to have been the site of an abundant Indian population, and it is also well known that walnuts and other nuts were carried about by the Indians for such purposes.

In order to obtain further light upon this question, we commenced several years ago planting both southern and northern California walnuts side by side in nurseries both in the south and in the north. When so grown the resulting trees have shown very marked and constant differences from one another and the characteristics of each type as shown in the nursery have remained constant both in the south and in the north.

Seedlings of the southern type are much more branching and bushy than those of the northern, sending out large lateral branches and secondary stems close to the ground, while the northern seedlings grow erect with one stem and a few large laterals. In this way the southern seedlings are broad, bushy and covered with foliage clear to the ground, in marked contrast to the other type.

The leaves of the southern tree are somewhat smaller, more finely divided and with more sharply pointed leaflets than those of the northern. They are also a little lighter in color and the bark is of a brighter green. One of the most pronounced differences lies in the fact that the southern seedlings come out much earlier in the spring and continue to hold their foliage and grow much later in the fall than the northern, whether they are planted in the south or in the north. This is a most decided difference and holds true constantly, the rows of southern seedlings being always in full leaf in the spring while the northern are still bare, and showing the same condition in the fall for several weeks after the northern California seedlings have dropped all their leaves. This characteristic is one upon which environment, in the first generation at least, has no apparent effect. In the germination of the nuts the two forms also show a difference. Nuts of the southern California type are much quicker to germinate in the spring and when planted in the same conditions invariably sprout much earlier than the northern nuts, whether they be planted in the north or south.

Another decided difference lies in the relative effect upon trees of the two forms of various conditions such as dryness, heat, etc. An apparently physiological disease called the "yellows" or "frizzles," affects the northern California type very badly in some instances, but we have never known a southern California seedling to show this disease, even though grown in rows adjoining badly affected northern California trees. Another disease, nursery root rot, invariably picks out the southern California black seedlings, never affecting those of the northern type in the same nursery.



One Year Old Black Walnut Seedling — Southern California on the Left (1); Eastern in the Centre (2); Northern California on the Right (3).

sential for the most profitable walnut culture.—EDITOR.]

In the southern part of the State black walnut trees, apparently indigenous, are found growing over a considerable area, and, contrary to the case in the northern part of the State, very few such trees have been planted along roadsides or for ornament. The southernmost point at which the tree, to our knowledge, is found growing is in the Santiago canyon east of the city of Orange. From this point north it occurs sparingly near the mouth of the Santa Ana canyon, abundantly in Brea canyon along the road between Fullerton and Pomona, and scattered through various canyons in the Puente hills west of this road. It is quite abundant in the San Jose hills west of Pomona, especially in the so-called Walnut wash, which extends down toward Covina. The species is scattered sparingly along the southern base of the high mountains from Cajon pass above San Bernardino to Garvanza, near Los Angeles. In the Santa Monica mountains the tree is abundant, especially on the northern slopes, near Lanker-

tered along the foothill range back of Ventura and Carpinteria, north of which point near Santa Barbara the species begins to grow scarce. Mr. C. W. Beers states that Mr. Ellwood Cooper has pointed out to him trees which were undoubtedly growing wild in the canyons back of Mr. Cooper's ranch some twenty miles north of Santa Barbara. From this point north we know of no authenticated record of native-growing black walnut trees until we reach those at Walnut Creek near Mount Diablo, a distance of about three hundred and fifty miles. We have investigated various reports of indigenous trees in this stretch of country, but thus far have found evidence of all such having been planted since the American occupation.

The southern California trees are considerably different in aspect from those of the north, although individual specimens of each may be found which resemble each other quite closely. The southern tree is much more shrubby, frequently branching directly from the ground, and tending to break up into a much branched, broad, low-spreading head even when a single trunk is

Protection From Grasshoppers.

To the Editor: In anticipation of some trouble with the grasshoppers, I have been wondering what would be the best protection for young olive trees that are from a foot to two feet high. I have been thinking something of burlap sacks, tying cheese cloth over the trees, and also of slipping paper bags over them and tying them at the bottom. It occurs to me that possibly the last method might exclude too much air from the trees, but it might be possible to perforate these bags in three or four places, which would admit some air. I would be very glad to obtain any suggestions from you on this topic.—H. S. J., Oroville.

As a protection against grasshoppers, we would have no hesitation in recommending the cheese cloth in place of the other materials you name. It will probably be much cheaper, easier to put on and better for the trees, as it will let in the light better, which is thing you have to consider even more than the air, enough of which would get in under any conditions. Since grasshoppers have been bad in many places this year, and being a dry year, one in which they will have to hunt for food and so invade more orchards and fields than usual it may be wise to give again the recipe for poisoned bran which is used to destroy them. This is made by mixing together about 40 pounds of bran, 2 pounds of cheap molasses and 5 pounds of arsenic, together with as much water as is necessary to make it hold together. This mixture is put near the trees to be protected and is greatly enjoyed by the grasshoppers up until the time it gets its deadly work in.

The above amounts of material will be enough to fill a good-sized tub. It will be found easier to mix only half of the given amounts at a time. In order to get the best results from the bait, considerable care must be taken in mixing it. A good way is to mix the arsenic and bran in a barrel with a shovel, or in a mortar-bed with a hoe; then dilute the molasses with water and work it in as in mixing mortar. In any case, mix it thoroughly. It is a good plan to let the material stand from 12 to 24 hours, then re-mix it, so as to allow the arsenic to soak well into the bran. Place a tablespoonful of poisoned bait in a pile on the ground; or, perhaps better, on a shingle at the base of each tree or vine. If the grasshoppers are coming into the orchard from one side only, poison need only be placed along the first six or eight rows of trees, and place a series of piles of poison, about a foot apart, along the threatened side. As soon as the poison is dry it should be moistened, as the grasshoppers will not eat much of it when it is dry. When properly mixed, the bait is preferred to the foliage of fruit trees. The placing of the poison on a board is recommended in order that it may be gathered up after the danger from grasshoppers is over. Serious results to stock may accrue if the poison is left in the field and cattle allowed to get hold of it.

PRUNING BERRIES AND PLUMS.

To the Editor: I have some Logan and Mammoth blackberry vines and have been told that they should be suckered until they are almost through fruiting. Is that proper? I also have some young prune trees and would like to know if they should be summer pruned. If so, when is the best time to prune them? They are one year old. About how many shoots should be left on a tree? I have been told the dark of the moon in June was the time to summer prune. Is there anything in that?—Subscriber, St. Helena.

We would remove runners from strawberry vines until they had about finished bearing, but we would not remove suckers from the bush or

running berries in the early season, nor is this the usual practice in California, though sometimes done elsewhere. It is better to let the canes make a good strong growth and get well established for the following season. With the blackberries, however, you may find it an advantage to pinch back the end of the new canes to make them branch, but the Mammoth, of all berries, will attend well to the branching without this trouble and with only the fall pruning. If anybody has had any experience in suckering the first half of the season and is sure that it is an advantage, we would be glad to hear about it, but believe that such experience is with strawberries, not bush berries.

Summer pruning is not advisable on plum or prune varieties. You can, however, very well rub off or pinch back a few small shoots, but that is a very different thing from summer pruning. Keep the shape of an ideal tree in mind, know where you want your leaders to develop, and then rub off any strong growing shoots that bid fair to interfere with them. The number of shoots to leave will depend on your ideal of a tree. A prune tree has a good many leaders, and you can get an idea of the number by looking at well shaped old trees. Would rub off only shoots that promised to make the tree too thick, and leave a good deal of work for the shears to do in the fall. Would also do any removing of the shoots as soon as convenient and not wait for the moon while the tree is wasting a lot of effort forming them. If the earliest time that the job could be done well happened to be in the dark of the moon, that would be the best time, but that is the only connection between the two that could ever develop, according to our best knowledge and belief. Would rule the moon out of farming operations, especially summer pruning.

BORERS IN OLIVE TWIGGS.

To the Editor: There are quite a number of olive trees in this locality that have something wrong with them. They make a growth of five or six inches and the center twig dies back, then it sprouts out at the sides and makes another growth in the same way. This makes a thick bush instead of the tree coming up as it should. Will send sample and you may be able to inform me what the trouble is, through your columns.—C. E. A., Oroville.

The dying back is caused by a beetle which bores into the twigs. The twigs above the point where the beetle enters dies and then, of course, buds come out from healthy wood below. No treatment has been devised against it, though its breeding ground is limited if all dead wood and brush and litter is cleaned up and twigs are cut off below the point of injury whenever the work of the insect is seen.

CONTROL OF MELON APHIS.

To the Editor: Last year my cucumber vines were destroyed in the middle of the summer by a small green fly that sucked on the under part of the leaves. The leaves turned yellow and died. I sprayed with arsenic of lead, turned up the vines and got well under the leaves. It did little good, and I sprayed with tobacco solution. That was better, but did not kill them all. Can you tell me what spray I should use?—W. J. D., Beaumont.

Probably the insect you refer to is the melon aphis, which is not a real fly. As it sucks the juices of the plant instead of eating off the surface, arsenical poisons such as you applied, are practically without effect. Sprays that will kill on contact, like the tobacco, will help, but it is

hard to get all over the vines, so that all the insects are not killed, and those left propagate so rapidly that they soon do a lot of damage if the weather is favorable to their growth. You might try to get some ladybird beetles from the State Insectary next spring (it is too late now), as these devour the aphids, and in the Imperial valley, and elsewhere are highly thought of. No method of checking the pests after they have become well established has given very good satisfaction. A method of root pruning for aphids was described in the issue of May 4, 1912, and if anybody has had success with it we would be glad to hear from them.

ORANGES IN SEVILLE.

(Continued From Page 633.)

The packing and shipping of oranges in Seville is a much simpler process than in California. The fruit is picked by men with bags slung from their shoulders and using long ladders. It is then usually loaded into railroad cars in bulk and sent to the city of Seville. Here the cars are run directly onto a large stone pier which lines the river Guadalquivir, to which steamers from other countries moor. The sorting and packing is done on the pier. The shipping boxes are also made here. The oranges are loaded from the cars into small baskets, which are carried by hand, and the fruit dumped into piles. Here the small, deformed, and decayed fruit is sorted out and thrown aside, and the rest divided into about two grades. In the case of sweet oranges, the scale is brushed off, if too numerous, but the bitter oranges are shipped without brushing. A strip of tissue paper about three inches wide and perhaps ten inches long is used to wrap the fruit, and the girls who do this work acquire great dexterity in putting it around the orange and twisting the ends. They sacrifice thorough work to speed, however, and the wrapper frequently falls off when the orange is thrown into the box. This wrapper does not entirely cover the fruit, but it serves to keep the oranges separated somewhat, and to take up any moisture that may be present. The filling of each box is supervised by a woman who sees that the box is properly packed and who puts in papers to cover the top.

The boxes used in Seville are larger than California boxes, their dimensions being about 12 by 16 by 36 inches, and their average capacity is 600 oranges. The materials for these boxes are brought to the pier already cut, and the boxes are put together here. Each box has a partition across the middle, which, instead of being like the end pieces, has its top rounded up from the sides, so that at its middle it projects about six inches above them. This causes the top, when put on, to have a bulge like an old-fashioned trunk. Each box is provided with a strong binding strip of green willow or similar wood around the middle and at each end, the strips being long enough so that when the lid is put on they can be bent over it and nailed down. Since the boxes are packed very full, and the top is bulged, these strips are necessary to hold it in place.

Practically all Seville oranges, particularly the bitter ones, are shipped to London by water, although some are sent to France. When the boxes are packed they are loaded directly into the ocean steamers which come up the river. In stowing the boxes, they must be set on end because of the bulged top, and this bulge assures a free circulation of air between the boxes in the ship's hold.

All the culls and small oranges which have a sound skin are sorted from the rotten fruit, and the skin is removed and dried. The work of removing the peel is done by girls, one girl cutting the peel into four quarters and removing one quarter with her knife, and another girl taking the orange and pulling off the other three-quarters with her fingers. These quartered peels are then spread out on huge tarpaulins laid in the sun. They are gathered up at night and spread out again in the morning until they are perfectly dry, when they are sacked and shipped. This peel is used chiefly for making candied orange peel. The pulp of the oranges thus used, and the entirely useless fruit, is gathered up and carted away by peasants, who use it to feed their hogs.

Co-Operative Finance.

To the Editor: Under the heading "How shall we co-operate?" in your issue of May 10th, the Associate Editor and Mr. McNaught refer to some of the problems met with, in efforts to co-operate. They point out that experience demonstrates money—that is the financing of the venture—to be the most serious problem that remains to be solved.

I believe that co-operation in raising the funds necessary for conducting the proposed venture is quite as important as co-operation in conducting the business after it is financed.

Mr. Lubin suggested in these columns sometime ago the bonding of the fixed agricultural wealth of the nation for say fifty per cent of its value and borrowing on these bonds the funds needed by the farmers. To my mind this suggests a solution to the problem of financing the venture of co-operative marketing.

Though not exactly pertinent to this subject, I would like to add the suggestion that such bonds be issued in denominations capable of being purchased by persons having as little as one dollar to invest. Our greatest need at present is for securities that are safe investments and that the investor can get without paying a commission to some fiscal agent. The farmer needs the money and has the security, the people have the money and want the investment. A little intelligent action would make them mutually helpful.

The money could be used in leasing, buying or building all property necessary to handling the agricultural product between the farmer and the market.

Building of a few new establishments by the association would induce owners to sell or lease on favorable terms everything needed for marketing so that the actual amount of money required to begin with would be comparatively small, thus allowing plenty of time for marketing the bonds.

Then, too, the city dwellers are eager to buy farm products direct. They are co-operating to this end by establishing free markets in many cities. This is the man and the mule stage. Soon they will find, especially the larger ones, that they must provide for the farmer living beyond this distance who is still served by the middle man. Soon they will be building up-to-date warehouses and cold storage plants which will relieve the marketing association to that extent. The city dweller and the farmer co-operating to lessen the cost of distributing the produce.

W. O. RETHERFORD.

Oakley, Cal.

LABOR INCOME ON THE FARM.

One measure of a farmer's success is the amount of money which he has left to pay him for his own labor after he has met all other expenses of running his farm, including interest in his investment. The legitimate running expenses of the farm do include personal, living or household expenses. This sum received by the farmer for his own labor for the year is his labor income.

Some farmers are making labor incomes about as large as their hired men and some are making good yearly salaries. Others are receiving little or nothing for their labor. Their farm income is largely or entirely from the interest on their investment.

Farmers who are not making labor incomes equal to the wages of a good hired man would be better off financially if they would sell their farms, put their money out at interest and work for wages.

An example will make this plain. Assume that a farmer has a farm income of \$1500, and that his farm investment is \$20,000. Interest on this at six per cent, is \$1200. The difference between this amount and \$1500 or \$300, represents his labor income. If his net income is only \$1200, then he has no labor income and is working for nothing.

Farmers should keep sufficient records of their business to enable them to determine their labor income. This means taking an inventory at the opening and closing of the year and keeping a record of the expenses and receipts.

If a farmer isn't making ordinary wages, in addition to a fair rate of interest on his investment, he ought to know it and then take steps to learn why and to correct the trouble.

On the other hand some farmers are making more than good interest on their investment and wages for the time which

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APRICOTS, 1 ton per hour.
PEACHES (freestone), 2 tons per hour.

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There's a "pay streak" in every piece of soil. And unlike that of a mine, its paying qualities do not depend on the ability to tap its start and drain its end. The harder and more intelligently you work a mining pay streak—the more you take out of it and the less you put into it, the better it pays and the smaller it grows—that's good mining.

Are you mining your soil by taking all it has to give and putting nothing back in return? Are you working its "pay streak" to the played-out point? Soil, no matter how good, can't last forever unless it is nourished. And the only way to nourish and preserve your soil's giving qualities is to use a scientifically prepared fertilizer.

If you have been, or think you have been, mining your soil by not using the proper kind of fertilizer, send us a trial order for

Hawferco Fertilizers

These products of scientific research and experiment will make your soil a veritable mine with an everlasting "pay streak." There's a Hawferco Fertilizer for every purpose, and we guarantee each one to contain the superlative in producing qualities.

Write us to-day for the fertilizer you need. Don't put it off—NOW is the time.

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SAN FRANCISCO

they put in. If they are not making as much money as they would like to it may be because their investment is too small and the time they actually work too limited.—D. W. Frear, Colorado Agricultural College. Fort Collins.

WITH THE FRUIT MEN.

The new Tulare cannery is being put in shape to handle fruit and vegetables this season. Peaches will be the main fruit put up.

The Fresno Republican states that several fruit-packers have sold dried peaches short at 4½c. As the crop will be less than normal, and as the price is now 5c or better, these sellers may have trouble to secure fruit at prices to make their sales profitable.

In an interview given out recently by T. C. Tucker, of the Almond Exchange, he stated that the almond crop will be about 1,750 tons, valued at \$500,000, while last year's crop produced 3,000 tons, valued at \$800,000.

Perhaps never before was the fruit crop prospect in the Santa Clara valley so hard to estimate. Orchards that have been irrigated, and that were not hurt by the frost, will have big crops, while others that frost visited or that have no irrigation facilities will have practically no fruit. In some instances the trees will not live through the year. In a general way, it may be said that prunes will not make over 50% of a crop, apricots very light, peaches also very small yield. Cherries spotted. Prices promise to be better than last year.

Earl Mills, horticultural commissioner of Butte county, estimates the orange crop of that section for next year will not go over 50% of last season.

The Fresno Republican states that the Associated Raisin Company has secured 4564 contracts, covering 99,417 acres of raisin grapes, which will cover about 89% of the growing crop.

The recently organized Sebastopol Evaporated Apple Association elected officers last week as follows: C. E. Hotle, president; J. P. McDonnell, secretary; Henry Elphick, treasurer. Mr. Hotle was also elected a delegate to attend the regular monthly meetings of the California Cured Fruit Exchange, with which the local organization is affiliated.

In a circular sent to its members, dated June 2, the California Cured Fruit Exchange says that growers should receive from 6 to 7 cents per pound for their 1913 crop of dried peaches. The Exchange contends that as the crop is only half that of last year that these prices are reasonable and should move the whole crop before the holidays.

LAND DEVELOPMENT.

On the large tract of land lying south of Red Bluff, recently acquired by Los Angeles men, there will be started a model demonstration farm and an irrigation system. This tract of land is to be subdivided and colonized.

Quite a number of new tracts are being set out to oranges in the district around Orland. The big Mills citrus planting and the small frost damage done there last winter has caused orange growers to look on that district favorably.

A large acreage is being set out to spineless cactus on the Osterloh place, near Haywards. Also in the Livermore valley 25 acres is being planted to cactus on the Pleasant View tract near that town.

It is stated that one of the units of land of the Solano Irrigated Farms Company will be placed upon the market in a few days. Land in any amount may be purchased.

A Gravenstein apple orchard of six acres near Sebastopol was sold last week.

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It builds up the soil by replenishing the nutriment that make healthy, productive trees.

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The trees in the orchard on the left in this illustration are starving to death for lack of nourishment in the soil around their roots. The orchard on the right has been fertilized and is bearing a bounteous crop.


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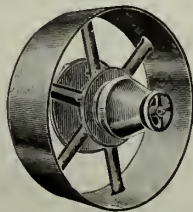
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NEW BOOKLET It is just off the press. It deals with the modern and economical way of handling fruit. You'll find it to be extremely interesting. No charge. Address

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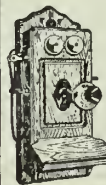
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IMPROVED STANDARD DRILLING MACHINE
One Man Can Handle
Has a record of drilling 130 feet and driving casing in one day. Only three levers. Extra large rope sheaves. Positively will drill every kind of formation. Avoid delays from sending back East. Buy from us. We build these up-to-date machines. Will tell you all in catalog. Write for it.

REIERSON MACHINERY CO., MANFRS., PORTLAND, OREGON

Plums and Prunes in the Sacramento Valley.

"Prunes is prunes" is an ancient aphorism overdue on the scrap-heap. For there is as much difference between the leathery, tasteless boarding-house filler and the succulent, luscious viand set forth to tickle epicurean palates in famous hostelryes, as there is between \$4 per week and \$100. To California belongs the credit of transplanting the prune from the joke to the jewel field. For only here is found the glory-hued, aromatic, rich, juicy, perfected product. Side by side the native offering brings a premium over the choicest fruit France and Italy can display. Climate, soil and scientific culture has brought this about, for the original stocks are mostly from Europe.

How best can we grow the choice, profitable plum in the Sacramento valley, where this fruit is attaining great popularity? There the curculio and black knot, which eat up profits in the East, are practically unknown and the loss from mildew, fungi and cracking of the fruit due to direct coast influences is avoided.

Careful selection of nursery stock is the first and highest essential. It would be well if every community or section adopted the system of ranchers on the Kuhn California Project, in Glenn and Colusa counties and had an expert buy stocks in large quantities and deliver so that the cost is materially reduced and

certainly in quality assured.

The myrobolan, is the accepted plum stock for most sections of California, but in the rich alluvial well-drained soil of the upper valley, the peach or almond are preferable. The French prune and the Felenburg do especially well in the warm soils, when grafted on the tops of old almond trees or worked on young almond stocks.

A prolific, hardy, luscious, top-price shipping plum which is especially adapted to the valley is the Wickson, a Burbank triflora—simoni, a hybrid of domestic and Asiatic, and now the leading shipping plum.

The tendency is toward wider planting. Not nearer than 20 feet, and in the rich valley land 22 to 24 feet is better. The plum will grow from 8 to 10 feet from bud or graft in a season and will sprawl over everything unless pruned. Neglected trees stream out and expose the bark to sunburn to which it is very sensitive, breaking the tree to pieces as the fruit gets weight, and even if supported by props, breaking off at the bearing of the prop. No hard and fast rules of plum pruning can be formulated as soil, stock, etc., differ and only observation and experience will determine; but cutting back well in winter and pinching in summer are useful in securing lower branching and low-growing fruit spurs.

A table very carefully prepared by Prof. Edward J. Wickson shows the plums and prunes proved and approved by successful growers. Those which are suited to the Sacramento valley are shown to be:

Prune d'Agén, which heads the list in sugar, 23 per cent in the fresh juice, very prolific, medium-sized, violet purple, excellent for drying.

Coe's Golden Drop; very large, light yellow, flesh firm, juicy rich, a standard late variety for canning.

Imperial Epineuse; uniformly large, reddish or light purple, thin skin, sweet and fine flavor, high sugar, but somewhat irregular in bearing. Do not confuse with an inferior Imperial.

Clyman; (California Seedling) Large, oblong, reddish mottled purple, flesh firm, dry and sweet; prolific; the leading early plum for shipment.

Tragedy; Medium, dark purple, yellowish green flesh, sweet, freestone. Very valuable for shipping from this early region.

Wickson; Very symmetrical rich claret color, amber tint flesh, very juicy and translucent, small pit. Most popular shipping plum in the State. Wonderful keeping qualities.

Formosa; A new Burbank, very large, profuse reliable bearer, no disease ever found on it, fruit six inches or more in circumference, clean, rich red, flesh firm, yellow, with delicious apricot flavor, nearly freestone.

In no other department of horticulture has such rapid and gratifying advance been made as in plums and prunes, and this State is in the lead with "the others nowhere".

As a fresh fruit is has developed from two pieces of skin with a sour streak between to a big luscious, delicious, gloriously colored, meaty fruit, to many discriminating tastes the most perfect product of the pomologists science. It is second in value in California as a shipper, and with the wide planting now going on, particularly in the upper Sacramento region, it bids fair to assume the royal place in the products of the world's greatest fruit land.



An idea of an orange twig when laden with the Black Scale.

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Are there any on your trees Mr. Orchardist, or do you know? Both are a common insistent, and destructive pest and have to be guarded against with ceaseless care.

Use Yel-Ros

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It will free your trees from both or either of these scales, will insure a healthy orchard and a big and clean crop of fruit. Yel-Ros is known throughout the State as a quick and sure scale destroyer. It is the cheapest effective treatment. Send a trial order today.

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Red Scale on an Orange Leaf.

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An ideal high pressure power sprayer, with utility engine, agitator, 200-gal. solution tank, hose, nozzles. Complete, ready for operation.

GUARANTEED

best in design, workmanship and materials. Purchase price cheerfully refunded if not satisfactory or found as represented.

SAVE

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PEDIGREED AND TRUE

Our soil grows good roots and a hardy tree, while out foot-hill district is free from every disease or pest.

Write us now concerning your next season's planting.

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100,000 Sour Orange Seed-bed Trees
Navels—Valencias—Tangerines
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HOOKS ARE MADE OF FLAT GALVANIZED STEEL, 1 1/4 INCHES WIDE.



BETTER AND CHEAPER THAN UNSIGHTLY PROPS

Will last as long as the Trees.

Prices per 100 Hooks,
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Excelsior Hooks....\$1.50
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Wire extra.



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Burbank Standard Cactus our Specialty; all leading and improved varieties guaranteed true to name.

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IRRIGATION SPRINKLER (The Campbell Automatic Ball-Bearing)



Placed on 3-4-inch standpipes 16 to 25 to the acre, in a run of 4 to 5 hours, they will, with 25 pounds pressure, distribute perfectly and evenly one inch of water in the form of fine rain. Cover four times the area of any other sprinkler, can't clog up and will last a lifetime.

Price, sample postpaid, \$2.00, or \$20.00 per dozen, f. o. b. Jacksonville. Your money back if not satisfied.

J. P. Campbell, Jacksonville, Fla.

References, Dun, Bradstreet or any Bank in Jacksonville

Facts About Cactus.

To the Editor: To express and to explain myself in proper English is quite hard for me, not being well enough acquainted with the American language, therefore I hope the readers of this article will kindly excuse me for not using the most suitable language.

I have devoted my time for the past five years to the propagating and cultivation of Luther Burbank's most wonderful product, and I am glad I can say that it is what he has represented it to be, and even more than that, and there is no doubt but what this cactus will be one of the greatest stock foods known in a very short time.

I have known Mr. Burbank several years, and when in Europe his name came to me almost every day. There is no man living today who is doing more for others' benefit in the line of horticulture and agriculture than Luther Burbank, and his name will be known all over the world and remembered forever.

Many people do not know that there are several varieties of cactus and think they are all the same, but this is not so.

Some varieties are adapted for certain purposes. Some of them will stand colder climates, more or less; some of them will like moist soil, and some soil more or less dry. Therefore, it is always advisable for the buyer to mention for what intention he wants to grow the cactus and to say what the locality is and what his soil conditions call for.

By the experience I have had, I can prove that cactus planted on heavy adobe, well drained, will produce in three years after planting by proper care and cultivation from 50 to 150 tons of green feed per acre, which can be harvested for far less than any crop known today, and the beautiful part of this is it can be fed the whole year round. Still when the plants are in growing condition they should not be cut, as at that certain season they are forming the coming crop. It might sound an exaggeration to you if I make a statement that on a piece 25 by 50 feet on my land I produced a year ago from one year old plants over 9½ tons of feed in one season, which I sold to stockmen in this locality as a trial for their stock.

One party stated that he started feeding his 22 cows an average of 20 pounds a day; that five days after the first feeding his cows increased in milk flow, producing better quality milk and better cream and he was more than satisfied.

About three years ago I personally fed it to poultry on my uncle's farm for about two months. The first two weeks the poultry did not seem to care for it. However, the third and fourth week they were eating it rapidly, and I can say today they will leave any green feed alone if fed on cactus. Any new feed to animals is not accepted by them right away, but they have to be taught how to eat it.

Coming back to the cactus varieties, they are very different in color and in shape. Some of them have green and some blue leaves. Some contain more sugar than others. Irrigation does not make them produce more, only larger leaves containing, of course, a greater percentage of water.

Cultivation is my principle in raising cactus. Some cactus have more spines than others, all depending upon variety. As a rule all fruiting varieties are more or less spiny, but all stock cactus of standard varieties are absolutely spineless. The fruiting varieties are certainly getting a bigger name every day.

The fruits on some of them get ripe as early as August, while some of them don't ripen until spring. The fruit is very easy to handle and can be sold for the same price as fancy fruits. In a very short time there will be a regular market for it and canneries will buy it just like other fruit. They are very different in colors and very different in shape. The flavor is different in each kind, and it took the plant wizard a long time to find the proper crossings.

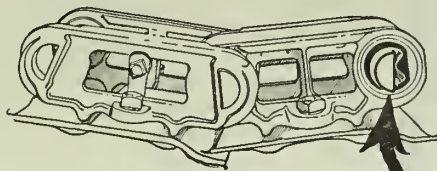
It is very interesting to see Mr. Burbank working in his field all day long studying and watching the growth of each plant, making notes to keep track of all his work. This time is not to be paid for. Many and many cactus plants were destroyed by Mr. Burbank before he found the right cactus, and still he is working at it all the time to produce a cactus that will live in colder climates.

Should any person have some land not adapted to fruit raising and still be suitable for cultivation I do recommend it highly to plant it in cactus, and you will never feel sorry.

JOHN ZUUR.

Santa Rosa.

Power Revolution



New "C. L. B." 70 H. P. Tractor

WITH ITS

Frictionless Self-Laying Track

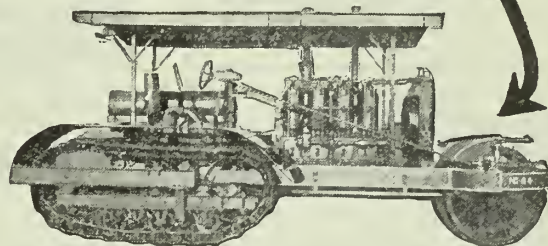
Specifically: the introduction of the Frictionless Self-Laying Track, by increasing the surface area, absolutely eliminates any danger of soil packing and enables the tractor to travel on any ground.

The utilization of the rocker joint and extremely long bearings eliminates grind and wear, making the tractor the most economical on the market.

The low construction makes orchard cultivating practical—and our All Steel Parts secure unlimited durability. These are only a few of the many innovations of which this new tractor boasts.

The C. L. Best 70 H. P. Gas Tractor presents the only

All Steel Tractor with
Rocker Joints
Oscillating Trucks
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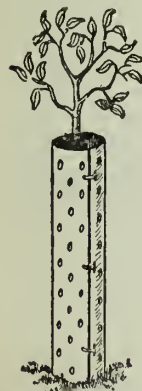
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C. L. BEST GAS TRACTION CO., Sta. G, Oakland, Cal.

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Today no one design of tractor could or does embody all desirable features or fit every condition.

Today farming conditions must be analyzed from the broad standpoint, and the vital needs detected and met with the maximum of efficiency. The trained experts of the C. L. Best Co. have for years been specializing on Western Farming Conditions. The new "C. L. B." 70 H. P. Track Engine is the result of this specializing

PERFORATED TREE PROTECTORS



TO CITRUS GROWERS, If the recent frost has caused the leaves on your young trees to drop so they will not protect the body from the hot sun, which will spoil a good many of them if not protected, let us supply you with wraps for them. Others are going to do it, why not you? You can't afford to let your trees go unprotected when for about a cent each you save all of them.

Also a word to you who are planting deciduous trees.

Last season we sold over a million Protectors to deciduous planters, and they find it was money well spent. You know that rabbits, hot sun, sand storms, raking of bark in cultivation, etc., always causes a loss that will many times more than pay for the Protectors to protect your whole planting. Let us sell you Protectors. We have the only Perforated ones made. Write for sample and price.

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All Fancy strains of Vegetable, Flower or Tree Seeds.

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6 pkts. of our Famous fancy Asters, named, best on the American market, 50c.
¾ lb. Lettuce, our fancy Los Angeles Market variety, 25c.

MORRIS & SNOW SEED CO.,
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Caldwell Fruit Pitter

One customer writes: "Fruit cut by your machine more evenly divided, and smoother after being dried, than that cut by hand." Another says: "We have six tons of dried fruit testifying to efficiency of your machine," etc. Fruit Growers! Avoid labor problems with result vexation and loss and save money by writing us now before rush begins.

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3214 E. 5th St., Los Angeles, Cal.

A-1 Grade Second-Hand

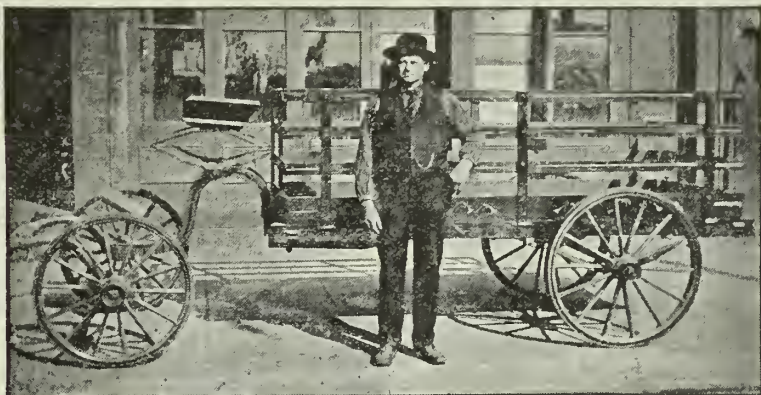
PIPE

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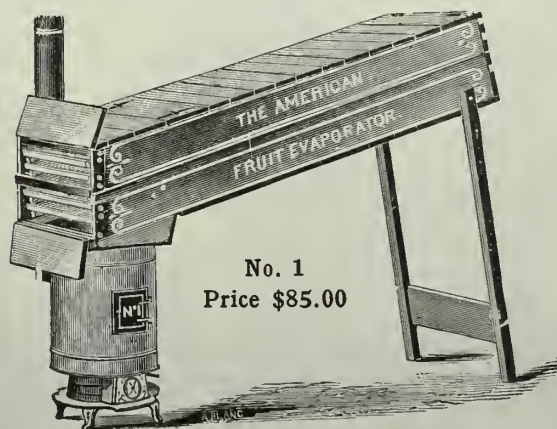
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AGRICULTURAL REVIEW.

Plumas County Notes.

Quincy, Plumas county, is in the rich American valley. Time was when this region depended on the mines; now its resources are agriculture and lumber. The lumber industries are only starting, while the agricultural interests are centering on stock-raising, both beef and dairy cattle being produced. The valley contains about 6,500 acres of rich tillable land, with good ranges to back them

up. A creamery has been put into operation at Quincy, the stock being held by citizens of the town and by some of the farmers. Not enough cows are as yet kept by the farmers to put it on a sound financial footing, but as fast as possible this is being overcome, as the stockmen realize good prices for their cream and are adding to their herds.

The valley produces a superior quality of potatoes, and it has been demonstrat-

ed that nowhere could finer celery be produced. For the best interests of the town and the farms, better drainage should be provided. Climate and scenery make this a splendid summer resort, and if taken advantage of would result in thousands of extra dollars for town and country.

The finest of timothy and clover is raised, and some alfalfa. Only two crops are cut from the alfalfa, but the slow growth produces such quality that we were assured it was equal in feeding value to four crops raised where the growth was more rapid.

Most of the cattle raised here are Short-horns. Some Holsteins on the Thompson ranch looked fine, and Mr. Jaskey is preparing to put in a herd of thoroughbred Jerseys. One of the finest places we visited was the ranch of J. E. Finlayson, who has about 100 head of grade Short-horns and some very fine horses. He is making a success of alfalfa.—J. D. T.

San Joaquin County Crop Prospects.

A letter from William Garden, Horticultural Commissioner, dated at Stockton, May 23rd, gives the following data on crop prospects in the heart of the delta section.

Almonds, almost a complete failure. Apricots, with few exceptions, a failure. Cherries about one-quarter of a crop (now shipping). Peaches, about two-thirds of a crop. Plums, a full crop. Prunes, a fine setting; too early to tell about the crop. Pears and apples, a good crop.

The Alberta peaches are showing up well, and some orchards have a full crop, while others have not over 25%. Muirs, the same way.

Cherry harvest is now in progress; the quality is good, and prices yesterday 7½c per pound.

Many vineyards are showing the appearance of a very fine crop, while others are very backward; more so is this the case where there is no irrigation. Some contracts have already been made by the shippers with the growers at \$25 per ton.

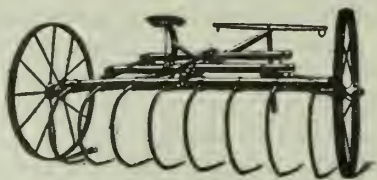
Napa County Prospects.

The fruit crop for Napa county this year will be very short, the prune crop being estimated at about one-third of a crop on May 30th. Apricots, peaches, and apples are very poor, even worse than prunes. Cherries are also very light. Pears appear very promising at present and are expected to be nearer a normal crop than any other fruit. Prunes have gone up in price from 2½c to 3½c, a good many having been sold at the last-named figure. This, of course, is for last year's crop. The wine grapes will be shorter than usual this year, due to the late frost, which greatly damaged them in most places. The hay crop is generally pretty good in most places, and growing feed in the mountains, while not up to normal, is a great deal better than in most counties.

Season Good in Modoc County.

A letter from C. R. Brown, of Lookout, tells of fine prospects in the northeast part of the State. He says that most of the hay was used in feeding stock last winter. Feed on the range is unusually good, and the prospect for alfalfa hay never better. The new cheese factory there, which began operations May 12th, is now handling 2,000 pounds of milk daily. Another factory has been built at Adin, 12 miles from Lookout, which is receiving about the same amount of milk. About 100 head of grade Holstein cows and several registered Holstein bulls have been brought in from the Sacramento and San Joaquin valleys.

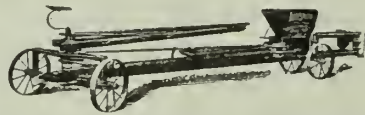
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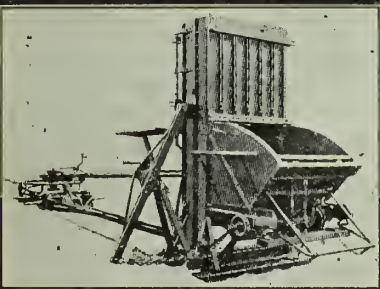
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Live Stock and Dairy.

On the Portland Union Stock Yards last week, cattle were lower than the week before, while hogs were a little higher. Steers brought \$8.25 to \$8.75, bulls \$6.50, cows \$7.25, hogs \$8.40 to \$8.60, lambs \$7.25, and wethers \$6.50.

The Anderson co-operative creamery charter has been filed and contract let for construction of the building. A number of Shasta county ranchers have agreed to furnish milk. Among the list is the name of C. C. Moore, president of the Panama-Pacific Exposition, who owns a ranch there, and on it has a fine dairy herd of 100 cows.

Big stock sales have taken place in the Livermore valley recently, and most of them at good prices. One lot of steers brought \$76 a head. The Tesla Cattle Company sold three cars of steers at 7 cents per pound, Charles Beauchamp sold 100 head of beef cattle, John Martin 65 head, and J. J. Moy 16 head, all at good prices. Peter Moy sold over 4000 head of sheep, and many head are being moved to the Tahoe forest reserve.

The Western Creameries Company is establishing a big dairy plant at Tempe, Arizona. This week 50 head of grade Holsteins were shipped from Stanislaus county on their account.

Five cars of fine beef cattle were shipped from Porterville last week to the San Francisco market, by Louis Gill. The shipment was valued at \$10,000.

A train load of sheep was sent from Hanford last week to Doyle, Lassen county. The sheep belong to Joe Solweyn and they numbered 4800 head.

General Agriculture.

The rice fields around Richvale, Butte county, are reported to be in fine shape. The hay crop in that district is also said to be extra good, alfalfa cutting over two tons to the acre.

A dispatch from Amarillo, Texas, dated May 26, states that a column of grasshoppers 5 miles wide and 18 miles long is reported in northeastern New Mexico, and traveling northward.

Governor Johnson has approved the law appropriating \$100,000 and enlarging the commission from three to seven members, to have charge of the Sacramento and San Joaquin drainage district.

McNab & Smith, San Francisco draymen, are reported to have purchased the surplus hay of the Ukiah valley at \$17.56 per ton, f. o. b. Ukiah. The hay crop is very good in that section.

Watermelons will be a short crop in the Dinuba district this year. About 700 acres were planted and a 50% stand was secured. Prices are expected to be high in consequence.

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In order to secure good pictures of its Derrick for the next issue of its catalogue, the SCHMEISER MANUFACTURING COMPANY, of Davis, California, wishes all camera owners to enter this contest and send as many views in as they wish. The pictures must be of some haying or farm scene showing one or more of the popular Schmeiser Portable Automatic Derricks, either in use or idle, and should not include family groups or persons other than the haying crew, and no person or thing should obstruct a perfect view of the derrick.

The only condition or stipulation is that you send in the film or plate and one print therefrom, postage paid, to the SCHMEISER MANUFACTURING COMPANY, DAVIS, CALIFORNIA, and that the negative and the print shall be and become the property of said Company.

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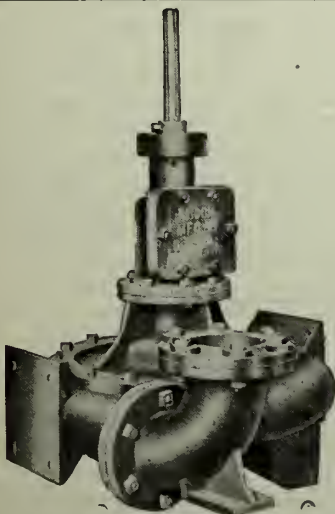
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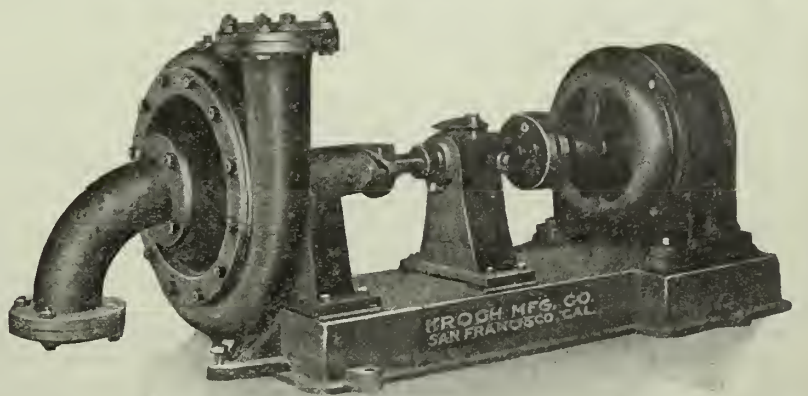
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Modern Dairy Ranch Buildings.

[Written for the PACIFIC RURAL PRESS by
J. C. LOOMIS.]

Now that the up-to-date dairymen of the State have greatly improved their stock, as well as their bank accounts, one finds more interest manifested in dairy equipment such as barns, silos, hog-houses, etc., and in this respect a lesson might be learned by anyone visiting the ranch of P. M. Lansdale, located about three miles north of Merced on the new State highway.

There are 600 acres in this ranch, which was formerly owned by the Crocker-Huffman Company and used principally for feeding and fattening beef stock, but for years a dairy was also maintained on the place. At present there are 250 acres of this in alfalfa, 50 acres in corn, 25 acres in Mission figs, and the balance in oats and barley; but new leveling will be done every year and the land eventually will be planted to alfalfa except what is planted to corn.

When the present owner purchased the place, about a year ago, there was a dwelling house, horse-barn, hay-barn, and dairy buildings, including an old silo which was made of wood with a concrete lining. Situated as it was with a half-mile frontage on the proposed State highway, Mr. Lansdale decided to make it a show place, with modern buildings and pure-bred Holstein cattle; so he made plans for up-to-date buildings, which at the time of our visit were mostly completed. In building the cow-barn and silo, no expense was spared, and by the aid of concrete no more sanitary or labor-saving barn could be wished for. The barn itself is 158 feet long and 40 feet wide, being built on the gable-roof plan, with a capacity of 96 cows, divided into four strings of 24 each, there being two such strings on each side of the barn.

To explain details a little better, the side wall is made of reinforced concrete to a height of about four feet, and is carried from there on up to the roof with 2 by 4 studding, a course of 1 by 6 sheathing and then a course of shingles. Openings were left along the side wall above the cement for windows, which can be closed or opened easily, allowing plenty of light and ventilation, also a large door in the center of the barn.

The floor is also made of concrete, being divided as follows: First a space of 5 feet 2 inches between the wall and gutter, then a gutter 14 inches wide separating the back space from the cows' standing space, which is 5 feet 2 inches wide. A space 2 feet and 9 inches was allowed for the manger, which has an oval concrete bottom with high back wall. Next to this is the center space, which is 10 feet and 4 inches wide, which allows liberal room for feed cars, etc. Naturally, both sides are made the same way, so we shall give details for only one side. One small thing included was to put an iron band around the corners of the manger which stands upright and otherwise would get knocked off by the feed cars.

The floor has a gradual slope downward from each end toward the middle, and from there is run out into a cement-lined cesspool which is near the building. By having the entire floor slope, it makes the gutter of an uniform depth.

A water pipe line is run clear through with taps and faucets every 26 feet for flushing purposes, also an electric lighting system with drops about every 30 feet on each side.

Instead of lumber stanchions, the Livden system of steel stanchions was installed, making the mangers very easy to keep clean and sanitary.

A complete system of overhead manure carrier track comes in from the separator house and goes in both sides with a track extended on out into the back corral, where all manure is carried. This carrier also furnishes means of transportation for the milk to the separator house.

The roof is shingled, and surfaced lumber was used inside and outside, which will be painted with white lead and oil. The corrals are located at the north end of the barn, and all stock goes in and out through that end.

Some distance from the barn, on the south end, the old silo is located with a capacity of 400 tons, and a new reinforced concrete silo has been

built on the same end, only closer to the building, with a capacity of 325 tons. Built on top of the new silo is a reinforced concrete water tank, which will supply water for all of the dairy buildings and will also give a good force for hosing. Corn will be used for the ensilage, along with chopped alfalfa and pasture, a large barn being available in which to store a large amount of the chopped alfalfa.

The old separator house will continue in use, as it is in fairly good shape, being equipped with steam separator, sterilizing facilities, etc. A noticeable feature is a small pump which pumps the skim-milk out to the hog lots.

Electric lights are installed wherever necessary at each end of the barn, and an electric switch placed at each entrance of the barn.

While at present only a few pure-bred cows are kept, registered Holstein bulls are being used, and as soon as the ranch is in shape, two carloads of pure-bred cows will be brought from the East, and from that time only pure-breds will be kept, until eventually there will be 200 head of milk cows.

As a start in the pure-breds, a bull known as Johanna McKinley Segis 2nd was recently purchased from McAllister at Chino, California. Two other service bulls are now being used.

A more radical feature than the barns to Californians is found in the building of the hog-houses on the ranch. These hog-houses and pens are located some distance north of the cow-barn alongside of a large irrigation ditch. They are built out of 1 by 12 lumber and are 7 feet wide and 16 feet long, with a shed roof running from 7 feet in the front to 5 feet in the rear, this roof being covered with tar paper. The floor space is divided by a partition 3½ feet high, allowing a space 7 by 8 for each sow. In this way two brood sows and litters may be housed in the one house. The floors are made to slide out for cleaning purposes, this being provided for by a hinged door near the bottom which extends from one end to the other on the back side. This is also used for the hog entrance from the pen into the house. On each end is located a hinged door which after being sawed in two makes a top and bottom door, the top ones being left open for ventilation. In front are small paned windows which allow light and sunshine into the houses and may also be opened for ventilation.

All of these houses will be painted gray to correspond with the dairy barn, the cost being about \$25 per house.

The pens leading from the back of these houses are 20 feet wide and 80 feet long, about 9 feet being allowed in front for feeding. One tree has been planted in each pen to furnish shade during the summer months.

As these houses are put in rows, when another string is added a lane 16 feet wide will be left, allowing plenty of room for a wagon drive. Water will be piped to every pen for drinking purposes. Other hogs than the brood sows will be run on pasture and a concrete wallow built for them. With the alfalfa pasture, skim-milk and buttermilk will be fed, the buttermilk being purchased from a nearby creamery. Pure-bred Poland-China boars will be used, and from 80 to 100 grade brood sows kept, with the intention of turning out about 1000 head of hogs per year.

As to improvements in other lines, 25 acres of Mission fig trees were planted this year, and the same acreage will be put out next year, with the intention of later on grafting over to Smyrna or White Adriatics.

A great many shade trees have been planted all over the ranch, both as borders and as shade for the stock.

Having had so much stock on it for years, the soil, which is naturally rich, is in fine condition, and as there will be more feed than the dairy stock will consume, some feeders will be purchased every year and fattened.

With such rich land, a plentiful supply of water, and situated on the State highway close to Merced as it is, the conditions for a breeding establishment are almost ideal, and when a good herd of pure-bred Holsteins are added, together with

the new buildings, the idea of having a show place should be accomplished.

While a great deal of money has been spent and will in the future be spent on this ranch, the dairy barn and hog houses are practical and many of their advantages could be incorporated on an ordinary dairy at very little extra expense.

MORE PORK FROM THE WELL BRED HOG.

[Written for the PACIFIC RURAL PRESS by
J. C. LOOMIS.]

Most California farmers have found through experience that a well bred hog gains flesh more rapidly on a given amount of feed than a scrub, but very few take the trouble to experiment at home in order to find out the true worth of the former kind.

An experiment along this line was recently finished at St. Joseph's Agricultural Institute, near Rutherford, Napa county.

This is a Catholic institution run in the nature of a training school for young boys, the object being to give them practical agricultural training on the 1000 acres of land in the farm.

Diversified farming is carried on, there being some vineyard, orchard, dairy, grain and hogs, so that the students can get information along any desired line of farming.

From 200 to 250 hogs are usually kept which have in the past been grade Poland-China sows, these having recently been bred to registered Berkshire boars. As the hogs are all sold to the butcher it was decided to find out which would be more profitable, the purebred or the scrub, also to see whether it would pay to raise the runts or whether they should be killed at the start.

With this aim in view three pigs were picked out, all six weeks old. One was a purebred Berkshire, one a grade Poland-China, and one a scrub, weighing respectively 44, 26 and 17 pounds.

These were kept in separate pens fed the same amounts, and at the same time, the ration being part oats, ground corn, barley, alfalfa hay, skimmed milk and a small amount of green oat hay daily.

They were started on this ration December 15, and May 12 they were weighed, at which time it was found that the purebred Berkshire weighed twice as much as the grade Poland-China and that the grade weighed twice as much as the scrub.

This experiment was not made to test the breeds or else only purebred stock would have been used, but, as before stated, to find the difference between good and poor stock.

When one remembers that they were exactly the same age and had the same amount of the same ration, the results, as can be seen, are greatly in favor of the registered stock.

The lesson of the scrub not only proved that he was very inferior, but when his feed bill was charged up to him, it was found that he was in debt for his keep, as he would not weigh out enough pork to pay for himself. Thus we have two lessons, first if one is to keep hogs he had better have purebred, even for pork production, and second, that the practice of allowing the scrub to live at all is not only a poor one but also a losing one, and it would seem that instead of saying, "Oh, well, I'll let him live as his feed doesn't amount to much, anyway," the farmer should say, "No star boarders on this ranch," and then proceed to use the ax.

FEEDING BROOD SOWS.

[Written for the PACIFIC RURAL PRESS by
CHAS. GOODMAN, Williams.]

We have just completed a very satisfactory experiment in feeding brood sows during the period of gestation.

When bred, the sows were in good fair condition; not fat by any means. They had the run of a green barley field, and in order to reach that field from their sleeping quarters they were compelled to travel through a lane one-quarter of a mile in length. And if they did not voluntarily go to the pasture each day they were driven there. This required them to take abundant exercise, which is most essential at this time.

We fed twice daily, morning and night, about a quart of rolled barley and about five quarts of slop, composed of wheat, bran, and wheat mid-

dlings, equal parts by measurement, to which was added an amount of meat meal equal to about 5% of the whole. This slop was mixed with warm water during cold weather and a small amount of salt added.

There were seven head in the bunch that farrowed 52 pigs and out of the lot only two were farrowed dead, and both were from a young sow that farrowed ten.

We have continued this ration since farrowing with the best results, the only change being in the amount fed. As the pigs grow, the mother will require more nourishment.

[This is an object lesson of the benefits of proper feed and care when one considers the average number of pigs to the litter and the number raised, for Mr. Goodman has good luck in raising his pigs, too.—EDITOR.]

Why Better Farm Horses?

[Written for the PACIFIC RURAL PRESS by
J. C. LOOMIS.]

In a conversation held recently with one who has been a large user of both horse and auto trucks for city work in San Francisco, the question arose as to which was the more economical to operate. His reply was that from his experience he found some cases where the auto truck was the cheapest, such as for long hauls of from three to five miles, but for use in congested districts the horse was far more economical, and as almost every city was becoming more congested every year, the need of draft horses would continue unless some radical change for the better were made in the truck's construction. A great many reasons are given as the cause of the auto truck's use, but simmered down to the big issue we find that most have tried the truck on account of the difficulty of securing suitable drafters.

Now it seems peculiar that a State as large as California, and with an increasing interest in better stock, is unable to supply the demand for good horses; especially so, it would seem, in view of the fact that the horse is found on every ranch, big or little, and is perhaps valued higher than any other class of farm animal in the State.

To go a little further, let us see what is the cause of this shortage of good drafters. Certainly it is not altogether due to the poor class of stallions bred to, for we have several importers who bring in a large number every year which are sold mainly to be used on farmers' horses.

With such sires a great many wonder why they don't get the large-boned, heavy drafter so desirable for city trade, but as a breeder recently told the writer: "The dairyman, cattleman, or hogman does not depend solely upon his sire, but also uses selection among his females in order to build up his class of stock, but when it comes to his horses he simply considers the sire and lets Providence take care of the size of his colt."

Now this may not hold good in all cases, but it surely is a noticeable fact that on most of our California farms the attention is not paid to the quality of the horse that it should be, and farmers here are losing money each year in that way, for it is no harder to raise a good-sized draft colt than it is a scrub-sized one, and when it becomes necessary to sell such an animal, buyers are always willing to pay a much superior price.

While it may hurt our Western pride some, it is nevertheless true that much can be learned from the Eastern States' experience in horses as well as most other stock, for the Eastern farmer long ago realized the importance of raising better bred horses, with the result that today most of the Middle West farmers have horses which they not only proudly show you, but which they also realize better money from.

While talking with a well known draft-horse breeder, this subject came up, and he stated that in his opinion the prospects for well bred and especially pure-bred drafters were better today than for any other class of farm animal, and gave as his reasons: first, the under-supply of such stock for the city trade; second, the increasing demand for more horses since the State is being subdivided into small acreages so fast; and lastly, for pure-breds that at present our supply is entirely from foreign countries, which is not only much more costly, but entirely unnecessary, providing men who really know a horse would

pay the price and get really well bred brood mares.

He emphasized "pay the price" and stated that unless one was willing to pay a good price, he could not expect to lay a foundation for really good stock.

In this respect he told of having made several trips to England to purchase stock and found the feeling there to be that the average American buyer went after bargain sales and was willing to sacrifice quality for cheapness. He also stated that good draft horses were worth as much in London as they are in San Francisco, and therefore could not be shipped here and sold at California prices, as the transportation charges alone amount to about \$200 a head to import.

Some may perhaps consider that the high cost of good brood mares eliminates them from the business, and no doubt it would for a man of moderate means to try and go into the business on a large scale, but this is not advisable or necessary for the ordinary farmer. For him, one good team of well bred brood mares will do a larger amount of work which will offset extra feed bills, and in a few years, from such a beginning, he will have a good bunch of horses to turn off every year at prices almost double that of his scrub stock, with the advantage of ready buyers any time he cares to sell.

As an instance of the financial returns from a good brood mare, we recently visited a man who had raised from one \$650 mare over \$2000 worth of colts, besides having worked the mare right along in the cultivation of his orchard. Surely such results are not obtained from scrub horses.

That the market is waiting for such stock is shown from the fact that several who have been in the importing business for some time are now beginning to buy brood mares as well as stallions, and are laying the foundation for pure-bred establishments.

Perhaps one reason farmers as a whole have been backward in the raising of better stock during the past few years is due to the interest manifested in gas-engine machinery of different kinds, but if we are to take the advice of those who have gone thoroughly into the subject, the fear from that source need no longer be considered, as there will always be a demand for good horses, although inferior stock is harder to handle on the market every year.

It seems strange that as necessary an animal as the horse should have been knocked around by everyone, from the auto-truck salesman to even the farmer himself, but it is to be hoped that, having proved his superiority for certain purposes once, he will not be compelled to go through the mill again, and it seems up to the farmer to supply the city demand in order to head off the cry for different modes of hauling.

SCREENED BEANS FOR HOGS.

A hog feed not generally known of but which is fine for young growing stock, is being used by the Balfour Guthrie Co. on their stock ranch in Napa county.

This feed is bean screenings, being the cracked and cull beans after the good ones are taken out. These screenings come sacked and cost \$6 per ton laid down in Napa.

Two large vats with a steam pipe running into them from the separator boiler are used for the cooking of the beans. These are poured from the sacks into these vats and water is added. After they have cooked a sufficient time they are allowed to stand until cool usually one cooking be-

ing sufficient for two or more feedings. They are then mixed with the skim milk and fed in that way, about 15 pounds of the cooked beans being fed to each hog daily.

Aside from this the hogs are allowed to graze on a small pasture near by and extra quick gains are obtained in that way.

They are fed this ration until just before selling for pork, when they are fed some corn.

This company has a nice herd of registered Holsteins which they started with last year, and expect to eventually keep nothing but purebred stock, and with their large land holdings they will no doubt have an ideal breeding establishment in the future.

CORNS ON HORSES.

[By R. E. MITCHELL, Student, San Francisco
Veterinary College.]

Corns or Bruised Sole.—This expression is applied to nearly all bruises of the rear half of the horse's hoof. There is a rupture of the blood vessels from injury (pressure from an improperly fitted shoe, or permitting the shoe to remain on for more than five weeks). Corns are apparent to the eye as yellowish, reddish, or bluish-red discoloration of the horn of the sole and white line. The horn tubes are penetrated by blood from the ruptured blood vessel. The discoloration may be so slight that if the foot be improperly pared, the corn may be entirely overlooked. We have corns of the wall, sole and bars. Corns affect principally the inner half of the hoof, and the fore feet are almost exclusively the seat of the trouble. There are two reasons for this:

First—Because the fore feet support the greater part of the body weight.

Second—Because the heel of the fore foot is placed upon the ground during progress, thus receiving much more concussion than the heels of the hind feet.

Different Kinds of Corns.—The various kinds of corns are:

Dry Corns.—This corn is dry and seldom causes lameness.

Suppurating Corns.—This corn forms considerable pus, causing severe lameness.

Chronic Corns.—This corn is either soft, moist or lardy and there is an intermittent lameness, aggravated by improper shoeing.

Causes of Corns.—Some feet are predisposed to corns, viz., narrow, deformed hoofs, deformity of the limbs, badly trimmed, wide, flat feet, excessively weakening the sole bars and frog, permitting the toe to grow too long, shortening one quarter too much, so that the foot is unbalanced, shoeing a heavy horse with too light a shoe, thus permitting the shoe to spring down on the heel; permitting the feet to become too dry and brittle, thus reducing the elastic properties of the horn; nailing the shoe too far back, thus preventing the natural spread of the hoof when placed upon the ground. Applying the shoe too hot while being fitted; insufficient concavity of the shoe in flat feet. Horses which have never been shod rarely have corns, thus proving that corns are due to errors in shoeing.

Treatment.—First removal of the cause by paring the hoof to the proper angle; shorten the toe and cut down the quarters if too high. Put on a level shoe. If calks must be used, use both toe and heel calks, never toe without heel, or heel calks without toe, unless for a special purpose. A leather sole should always be used under the shoe, and place a dressing over the sole of the following mixture:

Pine tar	8 oz.
Venice turpentine	1 oz.
Spirits camphor	1 oz.
Compound tincture benzoin.....	2 oz.

Mix and smear plentifully over the sole, after which apply oakum and the leather pad.

When there is a suppurating corn, the shoe should be left off for several days and drainage for the pus established. Poultices of flaxseed should be applied in which has been placed about two ounces of creolin. When the lameness has been removed, the horse should be carefully shod, using a bar shoe with a leather sole, and the above dressing. The after-care of the hoof consists in keeping it cool, moderately moist and pliant.

Live Stock Notes.

(Written for the PACIFIC RURAL PRESS
By J. C. LOOMIS.)

H. T. Liliencrantz, the purebred Percheron breeder of Aptos, Santa Cruz County, has purchased during the past few months a new ranch located in San Benito county. There are 4,000 acres in the new place and all of the cattle formerly kept by Mr. Liliencrantz on rented land below Salinas, as well as his horses formerly kept at Aptos, have been moved onto it. It is thought that this place will accommodate a large number of cattle as there is plenty of water and good feed. The home place near Aptos will be offered for sale.

Geo. Dunne, the well known stockman of Hollister, shipped 1,200 head of cattle to Mendocino county last week. This is the second shipment this month, as he recently shipped 600 head at one time. It is said that feeding conditions are much better in Mendocino county than they are south of San Francisco.

H. M. Barngrover, formerly of the firm of Anderson & Barngrover of San Jose, has been investing his surplus

money in the stock industry the past few months. During the winter he purchased a 600 acre stock ranch in Plumas county, which he intends stocking up with well bred cattle and horses, and during the past month has made plans for a dairy outfit near Tracy.

STOCK IN DRY DISTRICTS.

While this is an exceptionally dry year in most every section of the state, about the driest district the writer has been through is in Monterey county.

In talking with a cattleman near Salinas last week we were told that between 4,000 and 5,000 head of cattle had been shipped out of the county so far this season.

These were mostly steers, everyone holding onto their cows and heifers as long as possible. A great deal of this stock is being shipped to Imperial Valley to be pastured on alfalfa and barley, and some of the finer bred are being shipped to Nevada points for fattening.

Special "dry weather" rates are being allowed by the railroads in order that cattlemen may move their stock more economically, one whole train load being made up in one day at Kings City on that account.

We were also informed that there was no surplus of stock this year for normal weather conditions, so that the selling which is being done will have its effect for two or three years more, as the stock will be hard to replace at reasonable figures.

A noticeable feature of this year's selling is in the fact that while large numbers are being sold, good prices have been obtained and a plentiful supply of buyers are in the field at all times.

This in the fact of a predicted cut in beef and mutton, owing to the Australian meat being received, would seem to mean that the buyers have confidence in the future of the market.

One fine lot of stock near Hollister, San Benito county, is reported to have sold for seven cents on the hoof but they were of course in prime condition.

In talking with another cattleman who has been traveling considerably the past few weeks, he stated that conditions in Nevada this year were as good if not better than usual, and that stockmen in that district should go through the summer and fall in fine shape.

MORE JERSEY IN STANISLAUS COUNTY.

Jersey cattle seem to be gaining favor rapidly in Stanislaus county, a comparatively new breeder being L. J. Dobler, located near Turlock.

While Mr. Dobler has had for a number of years a few purebred Jerseys, it has only been a short time since he has determined to deal in them exclusively. At the time of our visit there were 18 head of purebreds on the ranch, two of which have been put on official test in the Stanislaus Cow Testing Association. The herd bull has been Turlock Signal, a 4-year-old, sired by Mary Maiden's Grandson. This animal has good records back of him and he has some favorable looking daughters among the present herd.

Another young bull, Gertie's Gold Nugget, purchased at one of the Geo. Smith's sales, is rapidly developing into a fine individual.

The future policy of this breeder will be to put everything on official test, and only bulls with butterfat records back of them are being purchased.

As there is only 40 acres in his ranch, it is not the intention to carry a large herd, the idea being to keep about 20 head milking.

Mr. Dobler, having built up his herd with small capital, is a practical dairy-

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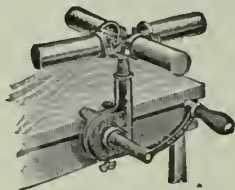
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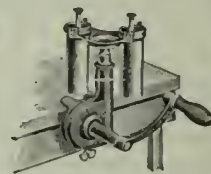
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JERSEY CATTLE, DUROC JERSEY SWINE. Mossdale Farm. J. E. Thorp, Stockton, Cal.

man and will no doubt eventually have a fine herd.

Henry Wheatley, of the Salvador Stock Farm of Napa, contemplates importing several head of stallions and mares from England in the next few months to show at the State Fair this year. These will be added in order to fill out the different Shire classes. His stallion, Harboro Combination, is rounding into a great animal, all of the brood mares having been bred to him this year. This horse has fine breeding back of him, being sired by Cattlegate Combination, and his dam was Moors Ragant. His sire, grand-sire and great-grand-sire were all great winners in London. He was purchased with the intention of using his offspring at the 1915 Exposition, and Mr. Wheatley was certainly fortunate in securing such a good animal.

Another likely looking young stallion is one called Salvador Forest King. This is only a yearling, being imported in the dam Lady Redlynch, and sired by Duns-moore Royal Friar. As a yearling he is as fine a specimen of the draft horse as one could ask for, having exceptionally good legs and feet. His dam has been bred to Harboro Combination and should bring a fine colt for the 1915 fair.

Among the younger colts on the ranch, one in particular deserves special mention. This colt's mother is Wellington Princess, who has won a great many English prizes and is well bred. The sire to the colt is Childwick Champion, who last year was the sire of more high-priced horses than any stallion in England. Mr. Wheatley is expecting this colt to develop into a grand individual.

The breeding end will receive more attention from now on, there being kept at present 10 well-bred brood mares.

Holsteins seem to be gaining in favor in Napa county, especially the purebred kind, another new herd being started by William Watt, manager for one of the local creameries at Napa. As a foundation herd eight young cows were purchased from the old Hotaling herd and two young bulls were purchased from Charles J. Welch, of Los Banos. Mr.

Watt, besides managing the creamery, has a ranch about two miles from town which is run as a dairy, 50 cows being

milked at the present time, most of which are grades. More stock will be purchased as fast as possible, the intention being to keep nothing but registered Holsteins.



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Stock Poisoning in Dry Years.

It is well known that poisonous plants cause much more injury to stock when food is scarce than any other time in dry years, the scarcity of good range naturally makes the losses greater than in good years. A bulletin of the U. S. Department of Agriculture has this to say on the subject:

It is generally recognized that the heaviest losses of live stock from poisonous plants occur in seasons when feed is short, but the intimate relation between such losses and the food supply does not seem to be appreciated at its full value. If it were understood and acted upon intelligently there would be much less complaint of harm done by poisonous plants.

Stock seldom eat poisonous plants when good feed is available. This is, in general, true even for the loco weeds, although it is well known that some animals have a loco habit and will eat these weeds in preference to anything else. This habit, however, is usually acquired during a season of short feed, when the loco weeds are the most attractive form of vegetation. If the stock can be prevented from acquiring the habit during

this period of scarcity, there will be very few locoed animals.

Larkspur poisoning is most likely to occur either during the season of short feed or on an overgrazed area; in either case the larkspur is the most conspicuous form of vegetation to attract the animals and is eaten in lieu of anything better.

The roots of water hemlock (Cicuta) are picked up when there is little else to eat and with disastrous results.

Successive bands of sheep are driven over the same trail until everything suitable for food disappears, and then there follow cases of poisoning from wild cherry. On some trails there is almost continuous hedge of wild cherry, and the leaves are eaten as high as the sheep can reach. We may assume that in such cases the first to pass over the trail are not poisoned, because there is something else to eat, and the last are not poisoned, because at that time even the poisonous plants have been consumed.

Sheep are sometimes bedded in the same place for several successive days. Under such circumstance everything near the bedding ground is eaten, and if there are any poisonous plants some of the sheep are pretty sure to get them. One of the heavy losses of the season of 1912 was brought about in this way. For five nights a band was bedded in the same place, with a consequent loss of 200 head. A band in the same neighborhood wandering without a herder suffered no loss.

If sheep are poisoned by milkweeds, and the evidence seems to be fairly conclusive that they are, it is only when there is little else to eat, for sheep do not eat milkweeds under normal conditions.

In the Carolinas, cattle are poisoned by "stagger grass" only in the spring. This lily then grows luxuriantly, at a time when there is little or no grass, and the cattle eat it in default of something better.

CONCLUSIONS.—The plants here referred to have been mentioned only as definite examples of a general truth. Stock seldom eat poisonous plants by choice, but only when induced or compelled by the scarcity of other food. It, perhaps, cannot be too strongly impressed upon those using stock ranges that their losses may be very largely reduced if they will recognize this fact and take a few obvious precautions.

(1) Stock should not be turned out upon the range where there is little to eat except poisonous plants. This is especially dangerous when the stock have been on dry feed.

(2) In a region where certain areas are definitely known to be infested with poisonous plants, stock should be kept away. This is especially necessary when the general range is short, either because grass has not started to grow or because it has been overgrazed. When the range is well covered with good grasses, herding away from poisonous areas is ordinarily unnecessary.

(3) When stock are trailed from one place to another, they should, so far as possible, be driven through a country with plenty of good feed. If it is necessary to drive them through a locality supposed to be infested with poisonous plants, care should be taken to see that the stock are not hungry when going through this region. It is much better to make such a drive in the afternoon rather than in the morning. Special precautions must be taken when it is necessary to pass over a trail that has been used by many others for all good feed will have disappeared and the stock will eat whatever is left. Sheep should not be bedded for several successive nights in the same place.

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for Milk Cows and Chickens and Young Pigs and Hogs. Cheapest food in the market today. If your dealer doesn't carry it, address

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Has Imitators But No Competitors.

A Safe, Speedy and Positive Cure for Curb, Splint, Sweeney, Capped Hock, Strained Tendons, Founder, Wind Puffs, and all lameness from Spavin, Ringbone and other bony tumors. Cures all skin diseases or Parasites, Thrush, Diphtheria. Removes all Bunches from Horses or Cattle.

As a Human Remedy for Rheumatism, Sprains, Sore Throat, etc., it is invaluable. Every bottle of Caustic Balsam sold is warranted to give satisfaction. Price \$1.50 per bottle. Sold by druggists, or sent by express, charges paid, with full directions for its use. Send for descriptive circulars, testimonials, etc. Address

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FOR SALE

Choice young pure-bred Guernsey bulls from N. H. dams.

Superior young Hampshire boars ready for service.

Three unusually good yearling dairy heifers.

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a Concrete Silo with all modern improvements. As permanent as the ground upon which it stands. Especially constructed to meet the requirements of the Pacific Coast States. CONTINUOUS OPEN DOOR FRONT

Perfect System of Ventilation and Drainage.

The most economical silo to build and to use. Write for "Catalog C" to DELTA CONSTRUCTION CO., P. O. Box 908, Sacramento, Cal.

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SHROPSHIRE SHEEP
SHORTHORN CATTLE
BERKSHIRE HOGS
641 MISSION STREET, SAN FRANCISCO

Alfalfa as Hog Food.

If you tried to tell a Missourian or Iowan of the old school that alfalfa alone makes a better hog than corn alone, he'd laugh you to scorn. Uncle Sam says so, and in his usual calm, dispassionate way, proves it. Any man who would rear hogs to best advantage should have alfalfa. Experiments prove that pigs make better growth when the dam is fed considerable alfalfa, the milk flow being strong and nutritious. And a valuable fact is established that sows fed alfalfa during pregnancy, will not devour their young, its mineral elements seeming to satisfy the appetite of the sow, while contributing to the fetal development of the sow. The leading swine raisers on the Kuhn California project holdings in Glenn and Colusa counties, where the management is conducting things on an observant and scientific basis, are agreed that all brood sows should be wintered on alfalfa of a late cutting, with milk (skim from the dairy) and only a little grain, until the last two weeks of gestation. This is found to keep them in a normal, non-feverish state, and yet furnish protein to build the bodies of the forthcoming pigs.

The Government has found that twelve pounds of alfalfa makes one pound of pork, when fed with Kaffir corn, or corn

meal. Also that five pounds of Indian corn will produce one pound of pork. Corn comes at from 50 to 75 cents per bushel, alfalfa at from \$8 to \$15 per ton. Figure it and you will see that alfalfa is the better food by just one-half. The following table, from Nebraska Bulletin No. 99, will interest alfalfa farmers:

Time of experiment.	MATURE HOGS ON ALFALFA WITHOUT GRAIN.		
	Lot 4. June 17- Aug. 26.	Lot 5. Aug. 20- Oct. 22.	Lot 28. July 27- Oct. 20.
Number of hogs...	14	10	18
Number of days...	70	63	95
Av. last weight, lbs.	168	221	240
Average gain, lbs.	34	27	50
Av. gain daily, lbs.	0.5	0.43	0.53

The argument is not here advanced that the best results are obtained from alfalfa alone, for a mixed ration of barley or Kaffir, soy, skim-milk or peas would add many pounds. But the point is that the base of the most successful hog raising, as to being prolific, costing less in food and care, bringing more in the market, lies in alfalfa. You can raise a good hog on alfalfa alone, though it is more profitable to feed some grain.

California should beat the world in another decade. The hog loves to wallow, but slime and swamp and miasma of bottoms and dirty pools, kill him as they do a human. There is abundant water in our valley, but you can't mix it with the soil there to make the slimy wallow that the fellow that comes from Missouri or Illinois or Indiana remembers. It's clean mud. And where eight or ten tons of alfalfa can be raised to the acre, 1670 pounds of pork per acre can be raised. Sounds big, but farmers have proved it in numerous instances. If one-tenth of the alfalfa land in the Sacramento valley were put to hog-raising, or 218,700 acres, 365,229,000 pounds of the luscious grunter could be raised yearly, a million pounds, and then some, every day in the year. And is that day chimerical or remote? With pork dallying anywhere from 12 to 25 cents in the butcher shops, and ranging around 8 cents on the hoof, with the marvelous fecundity of the beast and the comparatively low cost of production, ranchers are finding it profitable to go into such a business.

ALFALFA SILAGE AND BLOAT.

Recently we remarked that, although the matter was very seldom discussed, alfalfa silage had little if any tendency to bloat cattle. Hoards Dairyman was asked whether it did cause bloat, and holds the same opinion we do, as follows.

"So far as we know there is little or no danger of alfalfa silage causing animals bloat. We believe it would be well, however, to feed some dry roughage with it. Succulent feed may form the entire roughage portion of the ration but it is far better if some dry roughage is fed in connection with it, at least five pounds—better ten pounds. We believe it is more important to feed dry roughage with alfalfa silage than with corn silage, for there is a tendency of alfalfa silage to be somewhat soft and mushy."

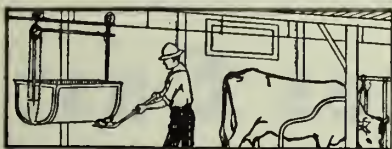
As far as feeding dry roughage with silage goes alfalfa hay is the most convenient thing that there could be, and the most efficient use of silage of any sort is when it is fed in sufficient amounts to give the cows what succulency they need, not as the foundation part of the ration. In most cases let alfalfa hay, or whatever hay is available, be the foundation feed and the silage for a relish. Of course, all this depends upon how a dairyman is fixed and what feeds he has, but it will evidently hold true in most cases in alfalfa districts at least.

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Gentlemen: I have
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with excellent results.
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DR. B. J. KENDALL CO., ENOSBURG FALLS, VT.



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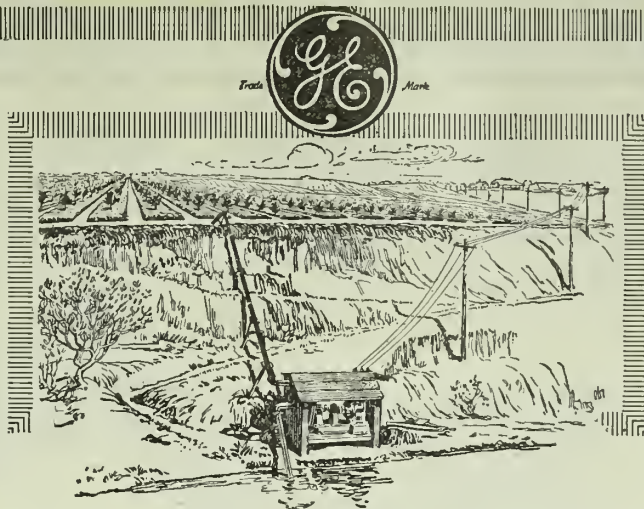
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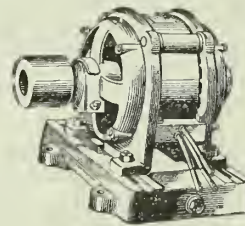
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You can pump day and night without interruption, and can start or stop the flow conveniently simply by operating the switch.

Add to all this, the value of electricity in the house. Electric lights make evenings more enjoyable and early morning's work easier—there are the women folks' duties, the sewing, the washing, the ironing, the cooking—which the simplicity and reliability of electric service rob of all their drudgery.

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The General Electric Company will, on request, gladly answer all questions relating to the use of electric power for farm and market garden irrigation. Write to the nearest office of this company.

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Bores thru gravel, sand and clay like a streak of lightning. If rock is struck it drills thru that. Forces casings perfectly. One man and one team can run it. You can make \$1 an hour for your spare time.
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POLAND-CHINA HOGS

LARGE TYPE

YOUNG STOCK FOR SALE. BOTH SEXES.

THE BROWNING STOCK FARM.

W. H. Browning, Prop.

Woodland, Cal.

Fowl Diseases and Prevention.

[Written for the PACIFIC RURAL PRESS by
SUSAN SWAYSGOOD.]

As I have had two cases of trouble with the crop this season it appeared a good time to speak of it and see what we can learn by the experience. Some short time ago I spoke of having a case of sour crop. Well, that hen has been perfectly well since then. But Sunday as we were picking out some hens to send to a customer at Merced, I noticed one with a full crop.

As it was too early in the day for that to be natural I caught her by the leg and put her in a box for future inspection. About noon I gave her some water and just let her go thinking perhaps, she would be all the better for a fast. Monday I got her out of the box, and found her crop just as full as ever and as hard as it could possibly be and not burst. I poured about half a pint of warm water into the crop through a syringe, then set to work to separate that mass of stuff so that the hen could vomit it, but it was an awful big task, both for me and the hen.

After working with my fingers as carefully as I could, I turned the hen with her head down, and worked the stuff along the food passage, quite a lot of it

came, but still there was lots more so I let the hen rest a little, for she certainly had the hardest task. It took three separate operations to clear that crop, and such a mess of rubbish I never saw.

Oat fibre seemed to be the real cause as there was very little grain in the crop, but it seemed as if the hulls of oats had been netted into a compact ball. Now, I never feed oats except sprouted oats, and so I knew that the hen could not have gotten so much fibre from what oats is served. But the last time I bought feed I had included in the bill a sack of what is called "oat midds."

Of course, I knew what it was, namely the refuse from the cereals, or breakfast foods, but the dealer tells me they sell a great deal of it so I thought that if it was good for others it was good for me. But I will not risk it again, because it has proven that it is, to say the least, an indigestible food.

Still I never would have supposed a hen could have accumulated so much rope out of a breakfast food, but the stuff was there to prove she had done so. The hen, after having the crop cleaned, was given a tablespoonful of olive oil and a little cooked mush, put by herself in a box for a day or two, after which I expect she will be all right.

OPENING THE CROP.—If I have another case like that I shall open the crop and empty the contents at one operation, which I think will be easier on both hen and operator. Dr. N. W. Sanborn says, "In opening the crop it is better to have someone to hold the bird for you, so you can have both hands free to work. Pluck enough feathers from the breast to give bare skin half an inch wide by two inches long. Then with a sharp knife cut through the skin, lengthwise of the bird, an opening one inch long directly over the swollen crop. Cut only the skin, leaving the crop untouched until the blood has ceased to flow from the first incision. Then cut through the crop a line a little over half an inch long. Half an inch may seem short, but you will be surprised to see how long the opening will be by the time you get through. In removing substance from the crop, be careful to let as little as possible slip between the skin and crop. In the opening begin with toothpicks, sugar tongs, or any small tool that is handy, to remove the contents. If filled with grass or hay, it may be necessary to cut the mass with scissors before any start can be made. When the crop is empty, push your little finger in to feel if anything is stopping up the opening.

If you find the opening clear, sew up the cut with fine needle and white silk thread, take two single stitches in the cut in the crop, leaving the ends long enough to hang out of the wound one inch. Then, in the same way, take three stitches in the skin, being careful not to get the crop in with it. After the operation, feed lightly on well cooked mash, feed no grain for a week."

Some cases that are not too bad can be relieved by just keeping in a box or coop without food for a day or two and giving some sharp grit, or broken crockery.

INFLAMMATION OF THE CROP.—This trouble is much more serious than packed crop, and is generally caused by the fowls having eaten something that irritates or poisons the crop. Such things as paint skin, pieces of unslaked lime, rough on rats, too much pepper, in fact there are dozens of irritating substances thrown out on the average home that the chickens will pick at, if running loose, that may cause this very serious trouble. Paint skins are very dangerous

and should always be burned to make sure they will cause no trouble. When ever you see a hen restless, moving around without any apparent aim and making jerky motions of swallowing, it is time to investigate. The crop may be

entirely empty, the bird having taken no food for several hours, and if the breathing is jerky it is a case of inflammation of the crop.

TREATMENT.—If there is anything in the crop, it will be best to dilute the con-

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HIGH PROTEIN

Meat Meal Bone Meal
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Mixed Meat and Bone
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S. C. WHITE LEGHORNS—Heavy layers, California's greatest prize winning strain. Eggs, chicks, stock. Send for list. M. Dutterbernd, Petaluma.

BARRED PLYMOUTH ROCKS, White Minorcas, White Holland turkeys. Stock and eggs only. L. N. Cobbledick, Oakland.

BARRED ROCKS ONLY—We have some fine breeders for sale now. Write for prices. G. L. Hawley, Madera, Cal.

BROWN LEGHORN ROOSTERS, chix and eggs, same in Barred Rocks, White Minorcas. W. S. Rose, Yuba City, Cal.

ORPINGTONS—Buff and White. Eggs, \$2.50 a setting, April and May. Mrs. S. Swaysgood, Route 2, Pomona, Cal.

FOR SELECTED EGGS AND CHICKS from S. C. White Leghorns, see Hopland Stock Farm advertisement.

BABY CHICKS, from heavy layers. White Leghorns, Barred Rocks, R. I. Reds. Free folder. White Hatchery, Petaluma.

CROLEY'S PIONEER EGG MAKER—Makes poultry pay when egg prices are low.

CHICKENS, DUCKS, GEESE, GUINEAS, Pea fowl. Address Wm. A. French, 545 W. Park St., Stockton, Cal.

TRAPNESTED S. C. WHITE LEGHORNS. Eggs, chicks, stock. A. R. Schroeder, Box P, San Gregorio, Cal.

WHITE LEGHORNS—Chicks, eggs, cockerels. Fine stock. Reasonable. O. B. Morris, Lodi, Cal.

BRONZE Turkeys and Eggs. Ed Hart, Clement, Cal. Large size, good plumage, early maturity.

TWIN OAKS FARM—W. H. Bissell, Proprietor, Livermore, Cal.—Buff, White Orpington.

RINGNECK PHEASANTS—Eggs for hatching. T. D. Morris, Agua Caliente, Cal.

CROLEY'S HIGH GRADED HARD SHELL—The leader in poultry shell.

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A few choice cockerels and pullets left. Eggs for hatching after January 1st.

JAS. M. MONTGOMERY,

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WHITE LEGHORNS

Selected and mated to imported stock cockerels.

BABY CHICKS at \$10 per hundred.

EGGS \$6 per hundred in lots of less than 1000 eggs. Orders in excess of this, 10c per dozen above highest market price one week before shipment. 75% fertility guaranteed.

We are closing out the remainder of our 2-year-old hens at \$9 per dozen.

1000 September hatched pullets, in full laying, at \$12 per dozen.

5000 hens yarded—sanitary conditions perfect.

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Pullets in full laying from \$12 to \$15 per dozen.

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Excellent
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Both Going
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August 1, 2, 7, 8, 9, 10, 13, 14,
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Baltimore	\$107.50
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July 22, 23, and 24 only.	
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July 1, 2, and 3 only.	
St. Louis	70.00
St. Paul	75.70
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and other points.

In addition to the above, tickets will be sold to Baltimore July 28 and 29. Final return limit three months from date of sale, but not later than October 31, 1913.

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tents with a few spoonfuls of warm water, then empty as in packed crop by holding the head down. If the trouble

has been caused by unslaked lime give vinegar and water, not over strong at first, if vinegar is not on hand give sour milk. For rough on rats give magnesia followed by turpentine mixed in cream and after a short rest give mucilaginous drinks, such as flaxseed tea. A dose of castor oil is also good, and rest and quiet are absolutely necessary.

ENLARGED CROP.—This, while not properly speaking a disease, is unsightly to look at, and no doubt inconvenient to the fowls. In a case of enlarged crop there is always a weakness of the muscles that should propel the food along to the gizzard. Very often the enlargement is caused from impacted crops being allowed to correct themselves, and each time the skin stretches a little more, until it assumes an unsightly appearance. The only remedy in this case is to operate on the crop as if for impacted crop, and cut off the low, or pendent corner, sewing up as before. Keep the bird on a low diet and be careful about over-feeding.

LEGS AND FEET.—Now a few remarks about these important members of the fowl's anatomy, and then we will quit talking about diseases.

The legs and feet of poultry are scarcely ever give a thought, unless the birds are of exhibition stock, and yet they play a most important part in the well being, and I might say, the well doing of the flock:

Leg weakness is generally attributed to inbreeding or some weak spot in the parent stock, which may be true or not; more often it is caused by wrong feeding. When a chick is noticed with a wobbling gait, keep all corn away from it. The weight of the body should never be increased faster than the bones can carry it. Feed a little bone meal in all mash feed, and give plenty of green feed, such as lawn clippings, alfalfa, etc.

BROKEN SHANKS.—When a chick gets its shank broken it is easy to fix, and there is no reason to kill such a chick, unless it is a cockerel, that would eventually find its way to the table. If a small chick, just put the two breaks together, make splints of tooth picks or even good stiff pasteboard will do, put a bandage of cotton around the leg, then the splints, and last a bandage of cotton cloth or muslin and sew the ends together so that it will keep in place and keep the bird quiet.

CRAMP.—Sometimes young brooder chicks get cramp through being overheated and not having exercise enough. The prevention will work the cure—reduce the heat and give plenty of short litter for exercise.

SCALY LEG.—This is something no self-respecting poultryman will ever have among his flock, for it is caused purely by filth, and as it is contagious only one fowl need get it to spread it through the flock. People should be careful when buying from places where the fowls are not given proper care, because if they happen to get one with scaly leg, the rest will be sure to take it. Even a mother hen will give it to her brood, so it needs watching.

TREATMENT.—Now, I always advise washing the legs in strong soap suds first, because whatever else you do the skin is softened and will take anything in better. Scrub the legs with soap and water and a small brush, then wipe dry and apply coal oil, let that dry, then rub in a mixture of lard and sulphur. About three treatments will fix it, and your fowls will look respectable. But mind: you must treat the whole flock to the same or your labor will be thrown away, and wash again after the scales come off.

The hay crop of Glenn county is re-

ported to be in good shape. A number of baling outfits are at work, and hay is being shipped to market.

Grain is reported to be filling out nicely in the district around Hamilton City and a good crop is anticipated.

IRRIGATION Gates AND Valves —OF PROVEN WORTH

There is a vast amount of difference between Pomona Gates and Valves for cement pipe irrigation and those of other manufacture. Our valves are the result of many years of experience in the manufacture of irrigation appliances and we not only have the "know how" but the equipment necessary to turn out appliances that will prove the most satisfactory under all conditions. Pomona valves will save you money and give you the most in years of satisfactory service. Don't depend upon hearsay, but investigate for yourself.

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The Pomona Circular Valve requires no special tools or wrenches to operate; is easily adjusted and can be regulated to allow the flow of any quantity of water by merely turning the thumb screw. All parts are non-corrosive. No cross bars to obstruct flow of water. Lid can be quickly removed for instant use. Very durable. Simple construction. Low in cost.

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Our 1913 valve catalogue "P" is now ready for delivery. It gives full information in regard to our complete line of gates and valves, together with prices. Also some valuable data on irrigation with water tables, etc. Write for a copy today.

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We are also manufacturers of the best and most satisfactory deep well pump on the market—the Pomona. If you are interested in lifting water from a deep well, it will pay you to get in touch with us.



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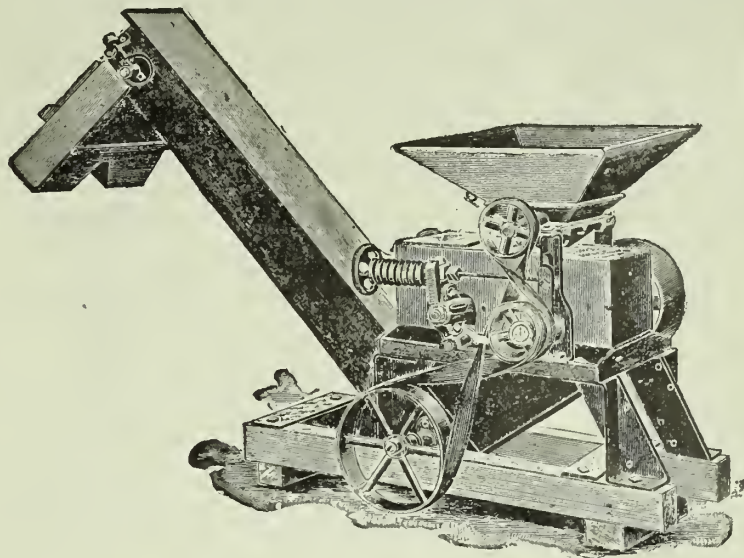
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From experience of practical and successful stock and cattle raisers, it has long since been learned that horses, cows, and other domestic animals fed on grain crushed by these machines, thrive much better and require, by far, less feed than when fed whole grain or that which has been ground by the ordinary process.

This tool is made in California; made in two sizes; requires but little power, and will make more money for you than any tool on your farm.

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LEAKLESS IRRIGATION PIPE

Made with long lock seam, powerfully grooved and made doubly strong by soldering full length. Can't break or leak. No rivet heads or rough seams to prevent easy handling. Slides smoothly without trouble. Send for Catalog B.

ROBINSON HARDWARE CO., Gilroy, Cal.

The Home Circle.

Marriage Customs of Long Ago.

Many of our marriage customs are relics of bygone days, and originated in the social and religious requirements of these times. Marriage by capture was a very common means of securing a bride, and although the halo of romance and adventure surrounding the stealthy midnight flight and secret ceremony caused many who in reality had no cause for secrecy to adopt this plan, yet there was often much hard fighting, as well as careful watching and guarding to be done before the fugitive pair were safely united as man and wife. Thus it was that the bridegroom always endeavored to engage the services of the most loyal, valiant, and strong of his acquaintances as best man.

In consequence of this rapid and hurried flight it was deemed advisable to spend the first month after the ceremony in seclusion, unknown to all relatives and friends, in order to give the parents time to cool their wrath, and feel more kindly disposed to the truants. This was the honeymoon—a very different marriage trip from our present-day holiday of peaceful bliss.

The throwing of shoes after the bridal party is a custom of very ancient date. As far back as Scripture times we learn that the passing of a shoe from one party to another was symbolic of the transference of authority; so the father, by throwing a shoe after the bride, signified that henceforward he renounced his authority over her. Sometimes in the fight at the capture of the bride, old shoes were thrown about when no more suitable missiles were at hand.

The custom of giving presents to the bride dates back to the primeval times, when it took the form of toll; her maidens and girl friends surrounded her dwelling and would not allow the bridegroom to enter to claim his bride, until he had paid toll in the form of presents to each of them.

In Scotland, when the contracting parties were in very poor circumstances, the guests helped to furnish their humble abode by giving them presents of household goods and chattels. A cart went around the week before the wedding and collected all the bulky articles, which were then arranged in the house by the young man and his mother or sister.

The Penny Wedding was another means of helping the young folks to start life, free of debt, and with a small surplus on hand. In some instances it was merely a subscription of a few pennies from each guest to defray the cost of the festivities, for the marriage feast was a most important part of the ceremony, and it was considered an indignity to the bride not to give her a grand send off and a right royal "wedding spree."

When the entertainment was arranged on a more elaborate scale, the date of the wedding was announced in the public papers and in all the taverns for miles around; guests were solicited to attend for the benefit of the young couple, and a programme of sports, games of skill for prizes, and other amusements, was drawn up and published weeks before the event took place. A barn or hall was secured to accommodate the party, often numbering from 100 to 200, and a jovial time they had, feasting, drinking, dancing, and singing till daybreak. The fiddler or piper was paid by voluntary contributions from the guests, and anyone giving an extra copper or two during the night was allowed to choose the tune.

A very amusing old custom was the feet-washing. On the eve of the mar-

riage all intimate friends and relations assembled at the house of the bride, and partook of refreshments and liberal portions of the "mountain dew." A large tub, filled with warm water, was placed in the middle of the kitchen floor. In a merry, good-natured frolic the bride's shoes and stockings were pulled off and her feet plumped into the tub; around this the young folks scrambled, eager to assist in the washing, and see who would be the first to find the ring, which had been dropped in from the finger of a married woman; first to catch the ring was the first to be wed, according to an old belief. The mirth of the evening was finished off with more refreshment, songs, and light-hearted jokes and fun. This custom was the survival of an old Scandinavian ceremony of religious purification, called the Bride's Bath.

It was considered unlucky for a newly made wife to go direct to her new home after the ceremony; she must first break bread in her father's house. In case she should stumble and fall when crossing the threshold of her new abode, and so bring misfortune to her husband, it was the habit of the bridegroom to lift his bride right into the house. His mother then came forward and broke a cake of bread over the head of the young wife, thus giving her a welcome, and signifying that want should never invade their dwelling. The bridecake was not the elaborate triumph of the confectioners' art with which we are today acquainted; it was merely a flat, round cake, resembling a bannock, or a form of Scotch shortbread. The young girls and maidens of the party gathered up the scattered fragments and carefully preserved them to place under their pillows, as a charm to enable them to see the face of their future husband in their dreams.

As at present, so in these olden times, May was considered an unlucky month for weddings. The reason for this can be traced to the old heathen custom of celebrating their greatest festivals on May Day; so unseemly were some of the practices of these observances that the Christian Church prohibited the whole of that month for formal and proper unions.

The understood law that the younger should not be preferred to the elder was not confined to Patriarchal times, as in the case of Jacob and Rachel; it held good for many generations, and even yet there is a relic of it in the practice at country weddings of pulling off the shoes of the elder and causing him, or her, to trip in stockinged feet the first dance of the marriage festivities of the younger.

But old national customs die hard, and in remote country districts and Highlands of Scotland many of these old practices, besides other equally quaint and interesting, are still in vogue at weddings.

To Preserve Beauty.

Housework does not have a tendency to make a woman lovelier—in a physical sense.

Woman is sometimes beautiful in spite of household drudgery—not because of it; and the housewife who takes upon herself the care of her own home must constantly guard against the injuries that her daily tasks may inflict on figure, carriage, face and hands.

"Keep smiling," and "step blithely" are the two mottoes tacked up in the sunny kitchen of one little woman who has managed to retain youth and prettiness after 12 years of housework for a husband and four children.

The moment the step becomes dragging and discouraged and the face falls into patient, weary lines, housework has be-

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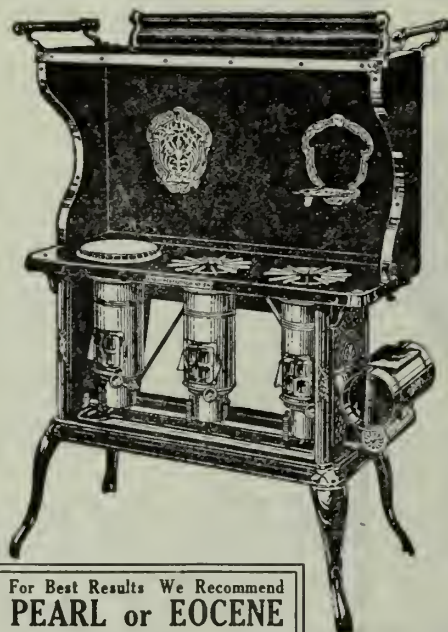
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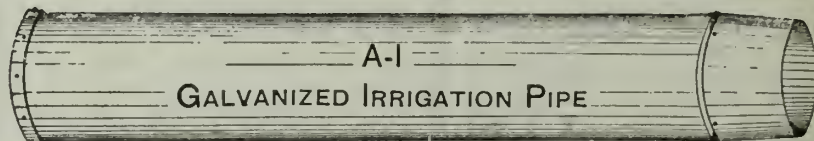
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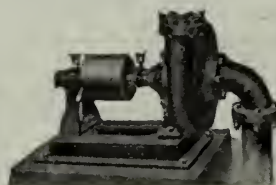
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gun to do its deadly work of making a drudge of its votary, and the best way to remain young and fresh and charming under the yoke of this daily routine, is to rise above one's work by relegating the household duties to the secondary place that is theirs; by filling the mind with fine thoughts, by constant good reading and with happy thoughts by frequent indulgences in little pleasures and diversions—even at the expense of neglect of work.

"She's a perfect housekeeper," used to be the final measure of praise that could be meted out to a woman. "She has kept her husband" is nowadays the supreme compliment.

"What is it to me," says one woman, "if the closets haven't been cleaned all summer? What is a little dust compared to the pleasure Dad and I have had in our motor boat? And what if I haven't put up six dozen jars of jelly and preserves—the children and I have had hours and hours of glorious happiness out in the open air."

Now housework moderately indulged in, never hurt any woman; but the trouble is, few women indulge in it moderately. Either they disdain it entirely and get too little exercise to keep themselves from growing fat—or bilious—or nervous; or they go in for it with a strenuousness out of proportion to their strength and muscular development.

Carrying coal up a flight of stairs, was never meant to be a woman's work. Standing all day at an ironing table will wear out and finally make crooked the straightest young back. Scalding hot dish water will ruin the prettiest pair of hands, and ever anxious concentration on making, brewing and cleaning for 10 hours a day will after a bit bring a pucker between the most charming brows.

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BOYS Send 25c and get "The Farmer Boy" 6 months. The only paper in the world published just for you. Send today to E. E. Barley, Editor, Exeter, Cal.

"Every autumn," asserts a busy physician in an inland town where the majority of women do their own work. "I have at least a dozen cases or more or less serious injuries brought about by putting up window curtains. There is no household task that is so inimical to woman as the task that requires reaching. No amount of lifting can compare with overhead reaching in dangerous possibilities, and the woman who hangs window draperies or pictures, wipes off picture mouldings just out of reach when standing naturally, runs the risk of doing herself lifelong injury."

Homely Hints.

When leaving wood pails and tubs for some time, lay thicknesses of newspaper in bottom and around sides, filling them a third full of water. The paper will hold the moisture after water has dried out.

If a shirt front or any other article has been scorched by ironing, lay it where the bright sunshine will fall directly on it; the brown spot will disappear.

Onions, when cut, quickly absorb impurities, therefore, they act as disinfectants. This should be remembered—the impurities they take up make them unfit for food, so a cut onion should be used at once or thrown away, never saved for tomorrow.

If you heat the knife slightly you can cut hot bread as smoothly as cold.

A little vinegar cooked with coarse meat will make it tender, or dip meat in vinegar before cooking. A small piece of apple cooked in a meat pie or stew makes the meat tender.

Nature's Disinfectant.

Sunlight is undoubtedly the best all-around disinfectant that we possess. Light, especially the light of the sun, has a wonderful effect on nearly all forms of germs. Almost without exception they are killed by a not very prolonged exposure to the rays of the sun. At first it was thought that the heat of the solar rays might be responsible for the death of the bacteria, but it has been shown by careful experiment that the rays of light themselves have a power of destroying germs quite apart from any heating effect which may be produced. This powerful action of the light of the sun in destroying germs is of enormous practical importance in nature. Everywhere, when the sun is shining, in the air, in lakes, in rivers, and in the sea, and on the land, all day long the light of the sun is destroying germs, and the action is fairly rapid.

A perspicacious young man, passing where an old colored man was busy setting fire to the dead grass in a meadow, accosted him thus:

"Don't do that, Uncle Eb, don't do that!"

"Why so, sah, why so?"

"You will make that meadow as black as you are."

"Never mind dat, sah, never mind dat! Dat grass will all grow out an' be as green as you is!"

"We had a fine sunrise this morning," said one New Yorker to another. "Did you see it?" "Sunrise?" said the second man, "why, I'm always in bed before sunrise."—New York Ledger.

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MARY E. WILSON, M.L., Principal.

Health Rules for Children.

The following brief presentation of simple health rules was made by the Hawthorne Club, a group of tenement house children in Boston:—Do not put pins in your mouth. Do not hold money in your mouth. Do not put your fingers in your mouth. Do not put pencils in your mouth or wet them with your lips. Do not wet your fingers in your mouth when turning the leaves of books. Never spit on your slate or on the floor or on the sidewalk. Do not pick your nose or wipe it with your hand or sleeve. Keep your face and hands and finger nails clean. Do not sit with wet feet or damp clothing. Do not swap parts of

apples, sweets, chewing gum, half eaten food, whistles, or anything that is to be put into the mouth. Never cough or sneeze into a person's face. Turn your face to one side and hold a handkerchief to your mouth. Breathe only fresh air, day and night, simply avoid draughts. Breathe, sit, stand, and walk correctly. Go to bed early, rise early, take plenty of physical culture, helping father and mother before and after school with the house work.

Old Lady—"Can you tell me, if you please, where I'll get the Blackrock tram?"

Dublin Car Driver—"Begorr, ma'am, if you don't watch yourself, you'll get it in your back in about half a minute."



The Favorite Family Beverage

Pleases the taste
strengthens and
nourishes the
body

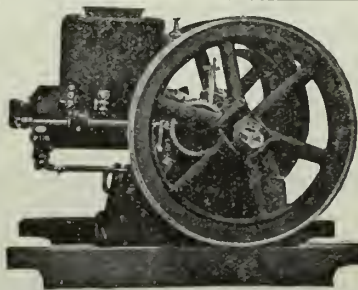
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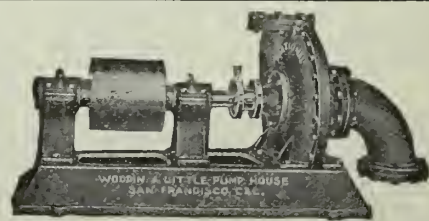
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THE MARKETS.

San Francisco, June 4, 1913.

(Unless otherwise noted, quotations represent prices paid to the growers.)

Cereals.

WHEAT.

There is no large demand here at present, though stocks are light and values are firmly held. In some parts of the San Joaquin the crop is turning out a little better than was expected, though the yield will be very light in many places.

California Club, cttl.....	\$1.67½ @ 1.70
Forty-fold	1.70 @ 1.72½
Northern Club	1.67½ @ 1.70
Northern Bluestem	1.77½ @ 1.82½
Northern Red	1.65 @ 1.80

BARLEY.

The barley market has developed a rather easier tendency, both for spot and future delivery, some choice feed being sold slightly below the last quotation. New barley is firmly held in the country, though the quality is said to be rather poor.

Brewing and Shipping...	Nominal
Choice Feed, per cttl.....	\$1.45 @ 1.55
Common Feed	1.40 @ 1.45

OATS.

Red oats are a little stronger, but not quite higher in price. White oats remain firm, but there is not much movement in any line.

Red Feed	\$1.65 @ 1.85
Seed	Nominal
Grav	Nominal
White	1.70 @ 1.75

CORN.

Values remain about the same, and the local market shows little feature, both demand and supply being light. The Eastern market is fairly firm, with a lively shipping demand.

Cal. Yellow	\$1.60 @ 1.65
Eastern Yellow	1.55 @ 1.60
Eastern White	Nominal
Kaffir	1.50 @ 1.55
Egyptian	1.70 @ 1.75

RYE.

Rye is nominal at the old quotations, with light offerings and hardly enough business to establish values definitely.

Rye, per cttl.....	\$1.40 @ 1.45
--------------------	---------------

BEANS.

The bean market, which has dragged for a long time, begins to show a little more steadiness. So far there has been no really strong demand for anything but white beans, but a little more inquiry is coming out, and holders are taking a firmer stand in regard to prices. Pinks are still rather weak, though prices have not been reduced, and red kidneys are a little firmer. The upward movement of white beans continues, with a sharp advance in small whites, as stocks are getting very low. Blackeyes also are beginning to move off well, and have been marked up, and bayos show a slight advance. Limas are quiet locally, and a good many Manchurian beans have been sold in their place.

Bayos, per cttl.....	\$3.30 @ 3.35
Blackeyes	3.30 @ 3.50
Cranberry Beans	4.70 @ 5.00
Horse Beans	2.35 @ 2.50
Small Whites	5.50 @ 5.85
Large Whites	4.90 @ 5.10
Limas	5.35 @ 5.45
Pea	Nominal
Pink	3.40 @ 3.50
Red Kidneys	3.90 @ 4.00
Mexican Red	4.00 @ 4.20

SEEDS.

The seed business in general is very quiet at present, and prices on most varieties are little more than nominal.

Alfalfa	Nominal
Broomcorn seed, per ton....	\$27.00 @ 28.00
Brown Mustard, per lb.....	3¾c
Canary	6 @ 6½c
Hemp	3 c
Millet	2½ @ 2¾c
Timothy	Nominal
Yellow Mustard	Nominal

FLOUR.

Prices remain firm at the same level as for several months past, with trade of about the ordinary proportions for this season.

Cal. Family Extras.....	\$5.60 @ 6.00
Bakers' Extras	4.60 @ 5.20
Superfine	3.90 @ 4.10
Oregon and Washington...	4.90

Hay and Feedstuffs.

HAY.

Local offerings run about the same in quantity as last week, with an increasing proportion of first-cutting alfalfa, which is offered freely from the river district. The movement in this line, however, is good, and arrivals clean up quite readily, with prices as for some time past. Grain hay is reported extremely quiet locally, with purchases only for immediate needs, as buyers are waiting for values to become more definitely established. Values are accordingly somewhat lower. Larger arrivals of new grain hay are expected, though little has appeared so far. The quality is reported satisfactory. At Fresno offers are reported of \$17 for baled hay loose in the field, or \$20 baled. Alfalfa is now about the cheapest feed available, and with a heavy country demand, is rapidly being shipped from producing sections. Continued activity is expected in this line.

No. 1 Wheat, or Wheat and	
Oat	\$18.50 @ 20.00
do No. 2	15.50 @ 18.00
Lower grades	15.00 @ 15.50
Tame Oats	15.50 @ 20.00
Wild Oats	14.00 @ 17.00
Alfalfa	12.50 @ 13.50
Stock Hay	9.00 @ 11.00
Straw, per bale	35 @ 80c

FEEDSTUFFS.

Nothing new has developed in this market, the demand being fairly active in all lines, and offerings at current prices are adequate for all immediate needs.

Alfalfa Meal, per ton.....	\$22.00 @ 24.00
Bran, per ton	29.00 @ 30.00
Oilcake Meal	35.50 @ 36.50
Cocoonut Cake or Meal.....	Nominal
Cracked Corn	34.00 @ 35.00
Middlings	33.00 @ 34.00
Rolled Barley	30.50 @ 31.50
Rolled Oats	35.00 @ 36.00
Shorts	27.00 @ 28.00

Garden Truck.

VEGETABLES.

Green corn has been coming in most of the week, and with increasing arrivals has dropped from about 75c to the present range, being still rather easy. Small lots of tomatoes, eggplant, etc., are arriving from distant points, but are not yet much of a feature in the market. Old yellow onions are about cleaned up, and new reds are a little higher, while some Australian stock is still offered at \$4 to \$5. Asparagus has been considerably higher, and is still doing better than a week ago, though rather easy on large receipts of inferior stock. Green peppers are lower, while a few choice cucumbers from the Sacramento valley bring an advance. Attractive lots of green peas also bring an advance, and string beans, summer squash and rhubarb are all higher, with an active demand.

Onions: River, Yellow, cttl....	85c @ \$1.00
New Red, sack	60 @ 70c
Garlic, per lb.....	4 @ 5c
Cucumbers, per box.....	1.00 @ 1.75
Cabbage, per cttl.....	1.00
Carrots, per sack.....	75c
Cauliflower, per doz.....	40 @ 50c
Rhubarb, box	90c @ 1.25
Artichokes, crate	1.25 @ 1.50
Green Peppers, lb.....	15 @ 25c
Green Peas, sack	1.50 @ 2.25
Asparagus, box	40c @ 1.25
String Beans, lb.....	5 @ 8c
Summer Squash, box.....	85c @ 1.00
Okra, box	25 @ 30c
Green Corn, doz.....	20 @ 40c

POTATOES.

Old potatoes are lower, with very little demand and ample supplies. Offerings of new potatoes from several districts are increasing considerably, but with a very fair demand prices are a little higher for the present.

Old River Whites, cttl.....	50 @ 75c
New Potatoes, cttl.....	\$ 2.00 @ 2.50

Dairy Produce.

POULTRY.

The market is in very poor shape. Quite a lot of both local and Eastern chickens was held over from last week, and with continued large arrivals, supplies are accumulating and prices dropping. Large young stock still finds a good demand, but other lines are quiet, and broilers, fryers, and small hens show a further decline.

Large Broilers, per lb.....	22 @ 23 c
Small Broilers, per lb.....	22 @ 23 c
Fryers, per lb.....	23 @ 24 c
Hens, extra, per lb.....	18 @ 19 c

Hens, large, per lb.....	18 @ 19 c
Small Hens, per lb.....	14 @ 15 c
Old Roosters, per lb.....	10 @ 12 c
Young Roosters, per lb.....	22 @ 25 c
Squabs, per doz.....	\$ 2.00 @ 2.50
Geese, per pair.....	1.50 @ 2.00
Ducks, doz.	4.00 @ 6.00
Turkeys, dressed	22 @ 24 c
do live	21 @ 22 c

BUTTER.

Considerable butter is still going into storage, but all offerings find a ready demand, and prices are firmly held at about the same level as last week, firsts being back to 27c.

Thurs. Fri. Sat. Mon. Tu. Wed.	
Extras ... 27½ 27½ 27 27½ 27½ 27½	
Firsts ... 26½ 27 26½ 27 27 27	

EGGS.

Values fluctuate somewhat from day to day, but show a gradual advance, owing to the greater scarcity of the top grade. Extras are 1c higher than a week ago, and selected pullets have gained 2c.

Thurs. Fri. Sat. Mon. Tu. Wed.	
Extras ... 23 22½ 22½ 23 23½ 24	
Firsts ... 21½ 21½ 21½ 21½ 22 22	
Selected Pullets... 20 20 20 20 21 22	

CHEESE.

Y. A.'s show another advance of ¼c and are firm at the new figure, while flats are steady at the old quotation. Monterey cheese shows a little wider range, supplies being ample for current needs.

Fancy California Flats, per lb.....	14½c
New Young Americas, fancy.....	17½c
Monterey or Jack Cheese.....	14 @ 15 c

Deciduous Fruit.

A number of new items have been added to the list this week, as a good many loganberries are coming in, and currants have been offered for several days, though both lines are still rather scarce and high. Figs also are arriving with some regularity from both Arizona and some California points, and several varieties of plums are in the market. The latter have so far been rather green, and move off slowly. A few new apples have also come in, fancy Astrachans selling as high as \$1.25, while ordinary green stock ranges from 60c to \$1. Old apples receive little attention. The market has been full of rain-damaged cherries most of the week, causing a drop in prices all around, and the damaged stock is forced out at low figures. Apricots are a little lower, but fairly steady, with light offerings, while most of the peaches offered are unripe and easy at a sharp decline. Gooseberries are a little lower, but raspberries and blackberries are still rather scarce, and sell readily at fair prices. A good many strawberries have arrived in poor condition, and such stock is easy, though first-class offerings bring a slight advance. A few cantaloupes have appeared, and larger arrivals are expected.

Loganberries, chest	\$ 8.00 @ 10.00
Blackberries, crate	1.50 @ 1.75
Gooseberries, lb.	4 @ 8c
Raspberries, crate	1.50 @ 2.00
Currants, drawer	90c @ 1.25
Strawberries:	
Longworth, chest	4.00 @ 6.00
Other varieties, chest....	3.00 @ 4.00
Apples: Red, box	75c @ 1.00
Newtown Pippins	1.50 @ 2.00
Cherries:	
White, box	40 @ 45c
Black, box	45 @ 55c
Royal Ann	50 @ 75c
Apricots, crate	1.00 @ 1.50
do box	60c @ 1.00
Peaches, box	85c @ 1.25
Plums, crate	1.00 @ 1.50
Figs, box	1.75 @ 2.50

Dried Fruits.

Since last week little new has developed in the dried fruit market, prices remaining as before on everything but apples. The latter have been subject to more inquiry than for a long time past, and offers for stock remaining in the country have been advanced 1c. There now seems to be a fair prospect of a clean-up in this line. Prunes still find more or less demand, but packers show no unusual anxiety to buy, except in the larger sizes, which it is almost impossible to get. There is some demand for spot apricots, which are very scarce and stiffening in price, though peaches move off very slowly. Owing to the light peach crop in the East, it is predicted that the demand for this fruit for canning and green shipment will be unusually heavy, leaving little for drying, and

prices should accordingly be high. Some authorities in the country are looking for a price of 6 to 7c, but local packers are not now willing to offer more for

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FARMS WANTED—We have direct buyers. Don't pay commissions. Write describing property, naming lowest price. We help buyers locate desirable property free. American Investment Association, 93 Palace Bldg., Minneapolis, Minn.

CONSIGNMENTS WANTED—Dried fruits, nuts, honey, beeswax, beans, eggs, butter. Our methods are conservative and returns prompt. J. E. LAWRENCE, 326-328 Clay St., San Francisco.

POSITIONS WANTED

WANTED—Position as manager or foreman on ranch. An expert at leveling land, raising alfalfa, handling water and gas engines; good milker, thoroughly understands the care of milk and cream; also the care and breeding of dairy cattle. Will give \$100 for any cow that will die under my care from bloat. Will consider nothing less than \$50 per month. Address Box 12, Pacific Rural Press.

FOR ONE HUNDRED DOLLARS per month, advertiser will work as foreman or superintendent; is thorough in general farming, irrigation, vine and deciduous fruit growing; experienced in working all kinds of labor. Address Box 21, Pacific Rural Press.

POSITION WANTED—By experienced man as foreman on stock or grain ranch, either on salary or commission basis; references furnished. Address Box 16, Pacific Rural Press.

Experienced New York State cheese and butter maker desires position in the West. Box 42, Hamlet, N. Y.

LAND FOR SALE.

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FOR SALE—Excellent dairy ranch, consisting of 400 acres, one-half bottom land, 160 acres alfalfa, good stand; ½ mile from station; good improvements, fully equipped. All tools and implements, machinery, etc., included; 3 barns. Best buy in San Joaquin county. For price, terms, and full particulars, address L. M. CUTTING & CO., 15 N. Hunter St., Stockton, Cal.

FOR SALE—Or trade for California stock ranch—100 acres, irrigated, 6-room house, barn, etc.; hog fences, living water in pastures, family orchard, lights, phone, daily mail, one mile from High and Grammar Schools. For terms, address H. S. PARRISH, Merrill, Oregon.

SEBASTOPOL APPLE AND BERRY LANDS, Sonoma county. Send for booklet telling advantages of investment in this good productive country where no irrigation is required. JOHN F. BYXBEE, Palo Alto, Cal.

FOR SALE—20 acres; 10 acres full-bearing fruit trees; 10 grain. Implements, live stock, furnished house, everything goes. Price, \$5,500. For particulars address owner. No agents wanted. W. TIEK, R. 2, Box 15, Vacaville, Cal.

CALIFORNIA LAND—Send for catalog. Properties in all counties. Valuable, reliable information. C. M. WOOSTER CO., Phelan Bldg., San Francisco.

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NURSERY TREES, fruit and ornamental. Nearly all varieties to be seen on our experimental place near State highway. LEONARD COATES NURSERY COMPANY, Morganhill, California.

CASH NURSERIES—Burbank cactus a specialty. Trees of quality. Sebastopol, Cal.

CAPRI FIGS for sale, \$12 per thousand. CHRIS HOEL, Gridley, Cal., R. F. D. No. 1.

MISCELLANEOUS.

REBUILT GAS ENGINES sold for 50% of their new value; cylinders re-bored, new pistons, and thoroughly overhauled. We furnish you a rigid guarantee. Send for our Bulletin, it will interest you. All sizes and makes of engines. MECHANICAL INSTALLATION CO., 181-189 Second St., San Francisco.

ALFALFA HAY—Second cutting will soon be ready to ship. If you are in need of good hay, write for prices. C. W. Vannote, Gridley, Cal. R. D. 1.

REFUSE LIME—300 tons for fertilizing, in carlots, at low price for a quick sale. H. B. MATTHEWS, 733 Merchants' Exchange, San Francisco.

future than for spot peaches, and values are very uncertain. Raisin business is still limited, but a larger movement is expected before long. The New York Journal of Commerce says: "California prunes on the spot are fairly active, although the demand is for small lots and the buying is confined to sizes including 60s and larger. On these the market is strong, with a rising tendency, and even the intermediate and smaller counts, while slow of sale, are firmer. In future, California prunes there is little demand from this end at present. Advices from Europe are to the effect that an active business is being done there in spot California prunes and that inquiries and orders directed to the Coast are large, indicating confidence on the part of foreign distributors in the situation. The reported damage to the French crop is acting as a stimulus in the buying of the larger sizes of California fruit, but the indications that Serbia and Bosnia will have a fair yield restrict European demand for the smaller sizes.

"The market for apricots continues to harden on reports from the Coast. The crop situation there is said to be poorer than for many years past, and there is practically no carry-over from 1912. The demand for future shipments from Europe is said to be heavy and continuous, but the local trade seems to be still holding off, though the trend of spot prices under a steady jobbing demand is upward.

"A little more demand is noted for spot peaches, and there is some inquiry from the local trade for forward shipments. The market is firm and advices from the Coast predict higher prices as a result of unfavorable crop conditions.

"No change is to be noted in the California raisin situation. Locally trade in spot goods is seasonably slow, and there seems to be no demand for forward shipments. The trade seems to be waiting for the termination of the negotiations pending between packers and the Associated Company looking to the handling of the carry-over of 1912 and the coming crop on a commercial basis."

Evap. Apples, per lb..... 4 @ 5 c
Apricots, new crop..... 12 c
Figs: White Nominal
Black Nominal
Calimyrna Nominal
Prunes: 4-size basis, spot... 3 c
do 1913 crop 3 1/2 @ 4 c
Peaches 3 1/2 @ 4 1/2 c
Pears 4 @ 7 c
Raisins—
Loose Muscatels in sweatbox 2 3/4 c
Thompson's Seedless..... 5 c
Seedless Sultanas 3 @ 3 1/2 c

Citrus Fruits.

The orange markets continue in good condition, and as sweets and seedlings will be about all disposed of in ten days, the price of valencias is expected to advance. During the past week shipments of oranges fell off some, and will probably not show an increase for the balance of the season.

At the New York auction on Monday, June 2, navels averaged \$2.50 and up to \$4.50 per box; bloods sold for an average of \$3; seedlings, \$2.75 and \$3.10; St. Mikes, \$2.30 to \$3.60; valencias averaged from \$2.60 to \$5.90 per box. Other auction points averaged about the same as New York.

Lemons are still commanding good prices. At St. Louis the auction price was \$5.80, at Pittsburgh \$5, and at Boston \$5.60.

Citrus shipments up to June 1, for the season, were: Oranges, 10,484 cars, and lemons, 1,411 cars; as against 22,003 of oranges and 3,406 cars of lemons to the same date last season.

The movement of citrus fruits in San Francisco is moderate, but keeps up at about the same rate as for some time past, supplies being light but sufficient for current needs. Mexican limes are again scarce and higher, and lemonettes show a corresponding advance, other lines being steady as last quoted.

According to the bulletin sent out by the California Fruit Distributors at Sacramento, the shipments of fruit to the East from California began earlier this year than last. Up to June 2 there had been shipped 138 cars as against 37 cars to the same date last season. Last year only cherries had been sent East in car lots to June 2, while this season there were sent 110 cars of cherries, 21 1/2 cars of apricots, one-half car of peaches, and 5 1/4 cars of plums.

Oranges, per box—
Valencia, choice to fancy...\$ 4.00@ 5.50
Navels, good to fancy..... 2.50@ 4.50

Grapefruit, seedless 2.50@ 5.00
Lemons: Fancy 6.00@ 7.00
Choice 5.00@ 6.00
Lemonettes 4.00@ 5.50
Limes 6.50@ 7.50

Nuts, Honey, Hops, Etc.

NUTS.

There is nothing new in the nut market as yet, spot values being entirely nominal. While high prices are expected for almonds, owing to the general shortage of the crop, a very fair crop of California walnuts is expected.

Almonds—
Nonpareils 17 1/2 c
I X L 16 1/2 c
Ne Plus Ultra..... 15 1/2 c
Drakes 12 1/2 c
Languedoc 11 1/2 c
Hardshells 8 c
Walnuts, 1912 crop—
Softshell No. 1.....16 @ 16 1/2 c
Hardshell No. 1.....15 @ 15 1/2 c
No. 2 10 1/2 c
Budded 17 c

HONEY.

The first of the new comb honey is expected in this market next week. Prices have not yet been established here, but there is a good demand for offerings of first-class quality, which are pretty closely cleaned up. Reports from some of the honey-producing districts indicate a short output, but little is known here as to the general outlook.

Comb, white15 @ 16 c
Amber11 @ 12 c
Dark 9 @ 10 c
Extracted, white 8 @ 10 c
Amber 6 1/2 @ 7 c
Off Grades 5 @ 6 c

BEESWAX.

The market is very quiet, but prices are steadily held, as little is offered in the country and local stocks are concentrated in a few hands.

Light30 @ 31 c
Dark29 @ 30 c

HOPS.

With old stock well cleaned up, there has been no very large movement yet, though a good-sized contract for new-crop is reported at 13 1/2 c.

1912 crop12 1/2 @ 18 c
1913 contracts13 @ 15 c

Live Stock.

The only change in live stock is a slight decline in young lambs, but all lines of dressed sheep and lambs have been marked down sharply. Dressed steers are also lower.

Grass-fed Cattle—
Steers: No. 1 7 @ 7 1/4 c
No. 2 6 3/4 @ 7 c
Cows and Heifers: No. 1.... 6 @ 6 1/4 c
No. 2 5 1/2 @ 5 3/4 c
Bulls and Stags..... 2 1/2 @ 4 1/2 c
Calves: Light 7 c
Medium 6 1/2 c
Heavy 5 @ 6 c
Hogs: Grain-fed, heavy.... 7 @ 7 1/4 c
150 to 250 lbs..... 7 1/4 @ 7 1/2 c
100 to 150 lbs..... 7 @ 7 1/4 c
Prime Wethers 4 3/4 @ 5 c
Ewes 3 1/2 @ 3 3/4 c
Lambs: Suckling 5 1/2 @ 5 3/4 c

DRESSED MEATS

Steers 11 3/4 @ 12 c
Heifers 11 @ 11 1/2 c
Veal, large 10 @ 11 c
Small 12 1/2 @ 13 1/2 c
Mutton: Wethers 10 1/2 @ 11 c
Ewes 9 @ 9 1/2 c
Suckling Lambs 11 @ 11 1/2 c
Dressed Hogs 12 1/2 @ 13 c

WOOL.

A good many samples of spring wool have come in, but so far only a few sales have been made, as there is no outside demand of any consequence and buyers are holding off. Values are accordingly little more than nominal.

Spring clip:
Southern mountain, free.. 9 @ 12 c
Northern, year's staple... 14 @ 16 c

HIDES.

The hide market has not changed for some time, but values are rather easy, as there is very little demand.

Heavy Steers, over 56 lbs. 14 c
Medium 13 c
Light Steers, under 48 lbs. 12 @ 13 c
Heavy Cows, over 50 lbs.. 12 @ 13 c
Light Cows, 30 to 50 lbs.. 13 1/2 c
Kip 14 @ 15 1/2 c
Veal 17 @ 18 1/2 c
Calf 17 @ 18 1/2 c

HORSES.

Conditions in the local horse market

have been disappointing. While strictly first-class heavy drafters and chunks that are ready to go to work find a fair demand at good prices, there is hardly any demand for other classes of stock, and prices have fallen off considerably. While reports of activity and good prices come from other markets, little more activity is expected here, and the outlook for the remainder of the year is doubtful, owing to the extreme prices of feed.

Heavy drafters, 1700 lbs. and over\$300@350
Light Drafters, 1500 to 1650.... 225@250
Chunks, 1350 to 1500 lbs..... 190@215
Wagon Horses, 1250 to 1350.... 135@175
Delivery Horses, 1050 to 1250.. 75@100
Desirable Farm Mares..... 60@ 80

MULES.

1200 lbs.\$200@250
1100 lbs. 150@200
1000 lbs. 125@175
900 lbs. 75@125

PUBLISHER'S DEPARTMENT.

In recent years there has been a re-

markable growth in California in the market for irrigating machinery, and the outlook for the future of this industry is very favorable. This condition of affairs has induced the Commercial Iron Works of San Francisco to equip its big new plant with the latest improved machinery for the manufacture and repair of all kinds of irrigating machinery. They manufacture deep-well and centrifugal pumps, check valves, etc., and handle two of the best lines of gas-engines, the Challenge gas-engine and the Simple oil-engine.

We believe that we can promise that the revised edition of "California Vegetables" will be ready for distribution by the latter part of next week. The last of the proofs have been read, and the presswork is to be finished today, then the book goes to the bindery. We will send to those who have ordered them just as quick as we can get them out of the binder's hands. Those who have been holding back their orders may send them now and rest assured they will get the book within a few days.

There are two kinds of

SERVICE—

the good and the bad.

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Sacramento is the best example of what may be expected at **WEST SACRAMENTO**. The business section of the Capital City was for a great part built upon tule lands—it is, in fact, a reclamation district itself. So extraordinary has been the development of Sacramento that long ago its growth would have taken it across the river. But because of possible floods on the opposite side and the absence of transportation the city was forced to expand to the east and south.

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Address

City..... P. O. Box.....

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FRED T. MOORE
Manager Land Sales Department

Nicolaus Building
Sacramento, California

San Francisco Office
Corner Pine and Kearny Sts.

THE PACIFIC RURAL PRESS

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SAN FRANCISCO, SATURDAY, JUNE 14, 1913.

Forty-Third Year.]

HOG CHOLERA.

[BY THE ASSOCIATE EDITOR.]

For the first time in history pork production has been put on a sound financial footing, the rancher can rest assured that by attending to his business properly, feeding and earing for his hogs as they ought to be eared for, he can come out with the profits that he should have. This is not theory, nor a description of future conditions, it is a statement based on actual conditions, proved by developments throughout the State, and the reason for it all is that swine plague, or hog cholera, as it is popularly known, is conquered to stay conquered.

Swine plague was the thing that was the one big discouragement to the hog owner. He could long figure out what it would cost to raise a hog to a marketing age and that there was a fine profit between the cost of production and the selling price, but along might come the cholera, and all calculations would go wrong. Other diseases and troubles could



Hog Pens at the Serum Station.

be avoided by good care and clean surroundings, and the hog has troubles enough anyhow, but no matter how clean and well kept hogs might be or how thrifty, along might come the plague and away would go both the profits and most of the cost of production with it. Thrifty hogs might be more resistant to the disease than poorly kept animals, but the cholera would develop, apparently spontaneously, in the poor herds, or be introduced, and then spread to herds with the best of care.

This disease just about offset profits in the State at large, and the proposition was about like this: In every business there is supposed to be a certain margin of profit, which in the hog business might be 20% of the cost of production, perhaps very much more, and often much less. With that margin of profit the hog business would more than pay, but with the hog cholera hovering above, ever ready to swoop down and clean out capital and profits, the business was on very shaky ground. In definite figures, this condition is shown in the fact that in 1886 there were in California 1,000,000 hogs, according to U. S. Department of Agriculture reports, and in 1900 only 598,336 head, less than three fifths as many. Even now, with our amazing increase in irrigation and alfalfa production, the estimate amounts to little over 800,000.

Serum Routs Disease.—The solution of the whole problem has been found, not in theory, but by hundreds of hog men between the Mexican and Oregon borders, in practice. The serum has been so extensively used that its use is now a standard practice among such a large proportion of hog owners that the remainder cannot fail to follow the same methods.

The way the disease and the serum operate is like this. Cholera, like diseases galore, is caused by a germ of some kind. When the germ



Injecting Hog Cholera Serum.

comes in and gets started the disease runs riot, without the germ the disease is non-existent, just as smallpox only comes when smallpox germs are brought around by a person having the disease or carrying it on his clothes. The cholera germ is so small they cannot find it even with the most powerful microscope, and it will pass through a porcelain filter, making it unbelievably small, nevertheless it is a germ just the same, for all the way it acts.

Along comes the germ on the rampage and down and out go the hogs unless they are immune to it, as a man recovered from smallpox is immune to smallpox for a year or so.

Immunity is like the saying, "some are born great, some achieve greatness, and some have greatness thrust upon them." It is just that way with hogs and cholera. Some are born immune, some, after great trouble, achieve immunity, and some have immunity to the disease thrust upon them, which is the way that the serum gets in its licks. Once the immunity comes, the hog is saved and the one great and hitherto unconquerable enemy that formerly wiped out hog and profit is overcome.

(Continued on Page 670.)

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FRANK HONEYWELL - - - - - Manager
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D. J. WHITNEY - - - - - Associate Editor

CALIFORNIA WEATHER RECORD.

The following rainfall and temperature record is furnished the PACIFIC RURAL PRESS by the United States Department of Agriculture Weather Bureau, at San Francisco, for the week ending at 5 p.m., Jun. 10, 1913.

Stations.	Rainfall Data.			Temperature Data.	
	Past Week.	Seasonal to Date.	Normal to Date.	Maximum.	Minimum.
Eureka .....	.12	34.47	45.44	64	46
Red Bluff	T	18.34	24.77	92	50
Sacramento .....	.11	8.02	20.04	80	48
San Francisco ..	.00	11.95	22.20	60	50
San Jose .....	.00	6.34	16.77	76	42
Fresno	T	6.22	9.68	94	50
Independence ..	.02	4.15	9.53	78	44
San Luis Obispo ..	.00	7.97	20.51	66	46
Los Angeles .....	.00	12.83	15.60	72	52
San Diego	T	5.99	10.01	66	58

The Week.

At the head of that very interesting and instructive article by Colonel Irish found in another column will be found the words, "Written to", instead of the usual "Written for." This is because we did not wish to be put in the attitude in the slightest extent of appearing to support the idea that the Japanese is essential to the agricultural or any other kind of welfare of California. Race prejudice is the poorest kind of reason for opposing any people; we want to look matters in the face; to see, as Colonel Irish has, the merits of these or of any people, and esteem them as highly. The American would be a far better man if he would adapt himself to conditions; if he would recognize efficiency and train himself to the same efficiency. For illustration, take the story of "A Garden in the Delta," written by Colonel Irish several weeks ago. The "tule hogs" had better have figured out how best to live, and failing in doing so themselves, had better learned from the Japanese, not turned over the country to them without competition. For the most desperate and shameful condition in which Californians and Americans can find themselves is to be unable to make their own living; to need some one to till their fields, to raise their vegetables, to do their housework, to carry them on their shoulders over all hard places. The sum and substance of all arguments for the Japanese, outside of a few ignorant sentimentalists in the East, is just this: that we need the Japanese to do our work for us, to till our fields, pick our fruits, raise our vegetables, our berries, our potatoes, asparagus and celery, to live in climates and conditions where we cannot live. Great Scott! What are we coming to if that is the case?

No people yet has survived who needed the support of others to live. These who have supported them have been made capable, strong, efficient; have shaken off the burden, and the pampered hothouse weaklings have fallen to a merited fate. All our American tendencies are that way now. Every machine that will save hard

work is heralded as a beneficent discovery. Our youths are hunting easy jobs and lots of pleasure, and we are relying to a disgraceful extent on the foreigner to do our hard work and our necessary work. To him it is left to toil, to economize, and to get ahead in the world. He it is that is going to share the country with those Americans who are making progress by skillful use of brain and brawn. Whenever we import Japanese to raise our vegetables, to pull our beets, to grow our fruits, we make ourselves to that extent inefficient; we crowd ourselves out. Better starve or let the land deteriorate by our wasteful grain-farming than have the Japanese feed us on the delicious fruits which soil and climate can produce. But we will not starve. We will raise our own fruit, develop our own land—provided we have to—and we will not do it if we have to compete with a yellow race who never will be Americans, never can be, and never want to be. If half of the Americans insist upon immigrants carrying them on their shoulders, let it be those immigrants whose children also will be Americans, sturdy, efficient, clean, and white, with whom our children will marry and associate. Read the story in Collier's of a week or so ago of the way that the Japanese have run the Americans out of Florin; read in the last issue of the Review of Reviews the blissful description by a Japanese of how agricultural California is helpless without the Japanese, and how those Japanese are not prospering as Americans, but solely and entirely as subjects of the Mikado. We apologize to Colonel Irish for using his very courteous and valuable descriptions of conditions as a basis for disagreeing with him; we apologize to our readers for discussing at such length a matter on which 95 per cent and over are in accord with us; but we should learn to carry our own burdens, to do our own work, to save our country for our children. It will be a great help in doing so to recognize, as Colonel Irish has, the reasons for Oriental efficiency.

Australian Influences.

Recent tariff talk brings to mind Australia and Australian beef and mutton. Apparently Australian beef and mutton has not hurt California prices, in spite of newspaper hilarity at the imports, but Australia may take a lick at California dairying if that tariff goes off, for it can almost get in at the winter season under present conditions. Still, the firm condition of the dairying industry is shown by prices. Butter prices are not made by dry weather, they are made by country-wide conditions, and the country as a whole is prospering agriculturally. In spite of good crops elsewhere and possible Australian butter in the winter, butter here will not down. Butter is going up, not down; dealers are storing, and have been unable to get much to store, either. Apparently, all we can produce the market will take and ask for more. You can't get away from it—the dairy cow and the alfalfa patch are winners.

Out in the World.

[BY THE EDITOR.]

[In our last issue Professor Wickson outlined certain conclusions of the American Commission about America, which were reached by applying to its own members the process of torture which it has been preparing for Europeans. At this distance there might seem to be a chance of the perishing of the Commission by its own weapons, but the writer disclosed no apprehension of such danger and tried to tell some of the things which Americans know about Americans. It will be seen below that the work in Europe has actually

begun, and something more interesting may now be expected.—ASSOCIATE.]

This expedition pulled ashore at Genoa instead of Naples, as originally planned, so that it could reach Rome by rail in time for the King of Italy's reception, which it could not do by continuing the sea trip to Naples at an average speed of thirteen knots an hour.

Thus by an unforeseen interference with its original plan, striking support has been given to the conception, noted in our issue of May 31, of the Columbian significance of the voyage, for it thus ended at the birthplace of the great Cristoforo Colombo—the commissioners falling, as it were, on their knees in the dust around the shrine of his alleged nativity. We write figuratively, of course, for as a matter of fact, the distinguished American discoverers were more busily engaged in rescuing their baggage from being preyed upon by the descendants of Columbus than in adoration of their world-beating progenitor. This is, however, incidental and does not vitiate the grand design.

Playgrounds of the Atlantic.

It must be understood that in these records of the voyage we shall diligently censor out all trivialities such as ordinary travelers are apt to indulge in. We are pursuing lofty purposes: scenery must be disregarded, seasickness must be stilled, the charms of all the freaky people we meet must be callously concealed lest our readers be distracted from the noble ends which shall be held constantly in view. Fortunately for this resolution, during the first half of the voyage there was nothing to see. If one can imagine himself at a point in the horizontal base of half a colossal eggshell which canopies him, blinking at an electric light circling over him, he can realize the rarity of scenery. For nine days and nights introspection was the sole recourse of the Commission, as our sketches have abundantly indicated, and then there crept under the eastern edge of the shell the sky-line of a mountain, then the outline of a ridge, and finally the shore-line of an island. Birds circled about and perched upon the ship's rigging; quaint small boats with canopies put out from the beaches. Attended by this escort from sky and wave, the great ship, carrying a cargo of 12,000 tons in the hold and about 1000 passengers on four decks of cabins, floated quietly into sight of a beautiful seaside city and dropped anchor in the harbor of Funchal of the island of Madeira. Looking ashore, one saw terraced hillsides covered with verdure, through which glistening white buildings covered with red-tiled roofs peered not too impertinently. The hills for elevation and outline were not unlike those which curtain Berkeley and Oakland, but their slopes rose directly from deep water and not from wide plains: thus ship and shore were parts of a single picture of great charm and beauty. A few hours ashore, gliding up the lower slopes, on streets pebble-paved, in canopied sleds drawn by swift-stepping oxen, rising to still greater heights by funicular railway, and tobogganing back to the beach in wicker-work sleds held from destruction by athletic natives who ran panting beside them, constituted a most novel diversion in which all indulged. Such experiences, combined with shopping and vainly trying to fill the hands of those begging for coins—hands evidently born cup-shaped, for the tiny toddlers have them and weep copiously if they are not filled—filled the three hours at Funchal with entertainment. The striking observation of Californians was the similarity of plants and trees to those grown in the gardens and parks

of our own State. To say that Funchal in April has the outdoor delights of California in the same month will carry a world of significance to our readers. In making suburban gardens on hill-sides, Funchal is perhaps a prophecy of what a few more generations of increasing population may bring to California's hillside situations. We never dreamed of such an amount of ingenuity and good engineering embodied in dry stone walls as may be seen on the hillsides of Funchal. Gibraltar has a large amount of stonework in garden terracing, but it is stone laid in mortar or as concrete, while Funchal perches gardens on retaining walls 20 to 30 feet high without a particle of adhesive and hardening substance, with beautifully uniform face and slight inward slope. Though many of these are apparently of considerable age, we did not see a single instance of bulging or falling in the several miles of different elevations through which we followed them. In some cases the area of the wall was greater than that of the gardens they supported, and evidently one quality upon which they can be counted economical must be that of durability. The system of irrigation by which these terraces are watered is also one which we could use, consisting of small reservoirs on different levels for distribution, all of them filled from time to time from larger storage above, chiefly, it seemed, from catchment water from ample watersheds on which, apparently, the rainfall was considerable. In Gibraltar, where the catchment area is small, certain slopes are covered with cement from which water is conducted to cisterns, an interesting trap to catch the last drop of water without waiting to get a part of it from the rock strata into which it would otherwise percolate. These catchment systems are apparently supplementary to the large distillery of sea water for domestic and warlike purposes in the garrison city.

But these references are anticipatory for the sake of running the water together. It was not until the second morning after leaving the Madeira islands that land arose again on the eastern horizon, and it was mountains in Morocco, north-east corner of Africa, around which we steamed until the rock of Gibraltar appeared. We do not intend to indulge in comment on this famous gate-post of the Mediterranean, which closely resembles popular pictures of it in everything but the absence of the insurance advertisement. It is, however, one of the playgrounds of the Atlantic, though designed by God for a sublimity of nature and by man for war—for which purpose it is always said to be honeycombed. After traversing its devious underground conduits to weariness and finding nothing melifluous whatever, we concluded that the term rat-holed would be more suggestful of its condition. But the holes in the rock and the slight pomp of war at its base do not interfere at all with its function as a gathering place for all kinds of people, and the moving picture of the five races of men which one gets in its shops is far more entertaining and impressive than the picture we used to pore over on the front page of our old geography. One-half of the throng in its narrow streets consists of strangers eagerly trying to do something, and the other half of residents strenuously trying to do somebody. It is a great game all around, and is played to the limit. As, however, we are touring neither for health nor personal profit, we have nothing to do with either of these phases of human activity. It is more serious business which has title to place in these letters.

From Genoa to Rome.

We have already anticipated the event of land-

ing at Genoa and stated the reason for it. A daylight railway ride was expected, but running a special train on a single-track road in the face of regular traffic seemed too much for local train dispatchers, and so the Commission was held in Genoa until evening to make a night run of eleven hours to Rome. We spent part of the time in meditation in front of the boyhood home of Columbus; disturbed therein somewhat by the fact that the street is only about ten feet wide and that it is as full of Genoese as were the alleys in old Chinatown of celestials. We found it hard to attain ecstatic ardor while catching a grind on the toes and a bump in the rear about once each minute alternately. Still we made out from the tablets that the house was occupied by Columbus during his boyhood, which still left the location of his nativity in doubt. Later we heard that he was born in another house, which was thoughtful of him, because it has endowed the cab-drivers of all coming time with an alternate proposition or a follow-up contrivance so dear to modern promoters. Thinking long about the environment of young Columbus, under the difficulties aforesaid, we concluded that necessity must have been the mother of discovery before she gave birth to invention, for if having to live in such a place would not fill a boy with a desire for a new world, such a kid would not be worth raising. As Columbus was not of that sort, we edged ourselves to the wall of the opposite house, flattened ourselves upon it, and day-dreamed about the boy who had real dreams so long ago under the low ceiling of one of those upper rooms, about a new world whose ceilings should be sky-high and whose alleys should be boulevards along which boys could run and shout without setting all the old cronies in the neighborhood to cuffing them. While we have gazed of late on monuments of Columbus full of prophetic vision and on paintings of him expounding to doubting savants his philosophy of discovery, we have more keenly realized that it was the narrowness of his bringing up which awakened in him the joys of contrast and the greatness of the new world was offspring of the littleness of the old world. And in attributing to him such an impulse as this, we are but deducing from the common experience of mankind the belief that yearning for escape is the ancestor of attainment—but this is as much out of place in this connection as travelers' gossip would be, and we must fly from Genoa with the closing reflection that the lesson for intending coöperators, from this aspect of the impulse of Columbus, is that, like him, they must take their motif for achievement from their suffering, with the assurance that they may fly from ills they know to blessings of which they wot not: but that may be the theme of some later paragraph, if we become surer of the truth of the suggestion.

By Special Train to Rome.

The ride to Rome from Genoa was a foretaste of the particular honors paid the Commission by the Italian Government, of which more will appear later. The railways of Italy are government affairs, and an attitude dictated by the throne stiffens or bends the back of every functionary down to the platform porters. The whole party was carried in a special train in which each individual was given the space usually occupied by three first-class passengers, the excess space filled with pillows, and thus the Commission rode to Rome, pillowed, as it were, on the bosom of a beneficent paternal government which its children cannot praise too much—judging from what we heard people say about it. The naming of a

principal thoroughfare in Genoa "Twentieth of September street" seems to reflect the gratitude of all Italy for its present political and industrial condition, as does also the grand monumental building covering a city block in Rome to the memory of Victor Emanuel I, while statues of and to Garibaldi rise on every hand. Thus we may say the comfort and satisfaction of the American Commission in its royal ride to Rome, were, like those of the Italian people, over its permanent lodgment in the arms of an up-to-date, enlightened monarchy. This statement pulls a few feathers from the American eagle, but the bird will have to stand it. We are beginning to do some rather paternal things ourselves.

Of this ride to Rome we can say much more, for it occurred at night, as already stated, and in the morning light of our arrival we were whirled through a strange succession of crumbling walls of buildings and aqueducts contrasting sharply with freshly painted modern farm structures until we passed through a breach in the old city wall into a maze of tracks and other railway appurtenances leading to the central railway station of Rome. Here early in a misty morning, the Commission was cordially received by the President of the International Institute of Agriculture and conveyed to a first-class hotel in new Rome, which has an inclination to perch higher on the seven hills and to look down in conscious superiority upon the banks of the turgid Tiber where old Rome of 2000 years ago is still being awakened from her long sleep by the process of excavation. Rome probably leads the world in the close association of things both new and old. Our next delight will be to tell of the activities and diversions of the American Commission in the Eternal City.

Queries and Replies.

Querists must submit full names and addresses.

Water Rights.

To the Editor: A neighbor has filed on ten inches of water on a small stream that does not flow ten inches. How far above his land can he lay claim to the water, and can he demand the full flow of the stream when it does not at this season of this year give ten inches? I am 1¾ miles above him; can I use the water that flows through my place, or can he stop me from using it?—Subscriber, San Luis Obispo county.

Irrigation law in California is in rather involved shape. Your exact rights in the case could only be known after having all details. It can, however, be said that if your neighbor has an actual water right, it extends as far up the stream as the stream does; in other words, no one above a man that has a water right can use the water that should belong to him. If the stream does not flow ten inches, your neighbor cannot obtain a right to ten inches, but after filing on ten inches he can obtain a right to as much of it as the stream does contain, provided the right he secures is prior to the rights of others who may want to get water from the same stream. Even so, there are lots of streams in California upon which many times the amount of water that ever flowed in them has been filed upon and yet persons making later filings have secured water rights. The right to water depends upon more than the mere filing upon it. The length of time since the filing was made, the possibility of the final rights being developed, and above all, the actual use of the water on land, all enter into a case. If you let us know these points in the case of the neighbor, we will put your case up to some irrigation authority.

The Races in the Delta.

[Written to the PACIFIC RURAL PRESS by
By JOHN P. IRISH.]

The California Delta is a museum of races. Many lines of passenger launches traverse the bayons around the reclaimed islands, and run from Sacramento to Stockton and to Antioch, Rio Vista and other river ports. Upon one of these fine, high-deck launches one of the fine river trips of the world may be had. Riding above the levees the fertile lands may be seen far stretching, bearing a great variety of crops. The graceful willows shade the berms and in their season the bloom of the grindelia, aster, wild rose, tiger lily and other wild flowers fringe the water's edge. The people of our cities who seek novelty and change can find both in a launch trip from Stockton to Sacramento. In the harvest season the go-downs on the levees are filled with the fruit of the earth, and there is a procession of barges and steamers taking it away to market.

In this harvest time, too, the swift launches of the produce buyers race up and down the streams, and the scene is a combination of natural grace and beauty and the activity of man.

The passenger launch is the meeting place of the races. The Italians, being mono-farmers and not efficient as general field farmers, are not numerous in that company. The Portuguese, the best Southern European land people in the State, and in every way admirable and orderly as citizens, are a small percentage of your fellow travelers, for Portugal is a small nation and the overflow of its population is not large. The Chinese, more numerous than either, are still a passing race in the Delta. They are excellent tillers of the soil, but our policy of exclusion, expulsion and persecution has reduced their number far below the needs of the State. As their labor was in exclusive and non-competitive fields, none took the places from which the law expelled them, until the resulting economic vacuum drew in the Japanese.

Among your fellow passengers you next recognize swarthy, long legged and long backed men, bearded, and some in turbans and some in caps. These are Afghans and East Indians. Those in hats and caps are Mahometans. The turbaned are Sikhs, Jains and Hindoos, for the great peninsula is the fountain of religions as well as races. You are in the presence of an economic law at work. The Japanese are less in number every year, and these tall and less efficient men are drawn into the vacuum in their turn.

You have inspected all the others, have noted in some their various degrees of need of soap and water, their slovenly dress, and among the East Indians their drunkenness. Even those forbidden alcohol by the Koran drink excessively of a whiskey that would split the seven heads of Vishnu, though poured down only one of his seven mouths. They are not efficient laborers, their diet is poor, and yet necessity compels their payment in a wage that is above the average of farm labor in the United States.

In the company are a few Koreans, very bright and intelligent men, but so few they are a negligible factor. The most numerous of your fellow passengers are the Japanese, easily distinguished from the rest. They are farm laborers too, but you notice their clean and trim condition, good and neat American clothing, well shod feet, and unmistakable air of self-respect.

You are ready now to ask, "Why this mixed company of strange races, and why the preponderance of the Japanese?"

You may ask the same question in regions beyond the Delta, in the raisin plantations of the San Joaquin valley and the sugar beet fields all over the State.

In adapting a labor system to a symmetrical development of the resources of a locality, fixed physical conditions must be reckoned with.

The resources of California invite capital into profitable productions from the soil that require a co-ordination of labor. In the Delta are 22,000 acres of asparagus. There are grown two-thirds of the onion crop of the State and the same proportion of celery. Indispensable primary processes in the production of these crops must be

performed in a constant stooping or squat position, and the same is true of the raisin and sugar beet production.

To this form of labor the short legged and short backed Japanese are adapted, as were the Chinese before them. Much of this labor has to be performed in a temperature of 100° to 110°.

When it is performed the product it has created, in all its movement forward to the consumer furnishes work and wages to white labor, which would have neither if the Japanese did not do the primary work indispensable to the production. It has grown into a legend, passed on by those who have not observed at all, or superficially, that the Japanese drive out white labor because it will not work with them. This false legend had its origin in possession by the Japanese of the labor fields in these productions at the primary point where by reason of fixed physical conditions white men never did work, and would not if there were not a Japanese in this hemisphere. In fields adapted to both, whites and Japanese do work together on terms of mutual respect. Mr. Geo. Shima, the expert potato grower, outside the cereals the most extensive farmer in the State, employs in his splendid organization hundreds of men, of whom one-fourth are white men. Ask them for an opinion of their great Japanese employer and fellow workmen.

Equally lacking in foundation is the legend that there is an overwhelming public opinion here against the Japanese and Chinese. The California Fruit Growers Association, in its annual convention in Marysville unanimously adopted a memorial to the President and Congress demanding a relaxation of the law so as to admit a limited immigration of Japanese and Chinese. That convention represented every orchard and vineyard in the State.

Another legend, related to the first above named, is that the Japanese being a subtle, crafty people, full of guile, at first work for nothing until their presence has expelled white labor and then demand excessive wages. The record is challenged for a case in which this has occurred. The rise in Japanese wages has been responsive to the need of their labor in a purely non-competitive field, until now theirs is the highest farm wage in the United States, and for it they return the best equivalent.

Another legend is that they have shown their excessive guile in first leasing farm land at an outlandishly high rent, even though they lose money, and then when their presence has repelled everybody else, they get the same land at a rent ruinously low, to the injury of the owner.

Having knowledge, by experience and observation all over the State, it requires patience, yes Christian patience, to deal with such a statement. The principal Japanese leaseholds are in the Delta. They are there for physical reasons which cannot be changed. If it is possible for the Japanese to have a leasing monopoly in California, it is there.

Now what are the facts? Leases to the Japanese began at \$6 per acre. They have risen to \$8, \$12, \$15, and now to \$20, \$26, and in some instances to \$30 per acre, which is the maximum limit that ought to be paid.

There is not space left to speak of them as neighbors, of their kindness to animals, their uniform cheerfulness and good temper, their exceeding personal cleanliness, their sobriety, their respect for law and their integrity in keeping contracts, their patience in adversity, their exemplary politeness and good manners. These are the attributes of the common laborers.

From the foregoing statement of observed facts, the conclusion is unavoidable that the presence of the Japanese here is a distinct industrial, social and economic benefit to California.

Go and take that launch trip. Leave Stockton by the Lauritzen line at 6:45 a. m. and land in Sacramento at 7 p. m., and you will say with Sheba's queen, the half has not been told.

SANTA CLARA PRUNE CONDITIONS.

Weather conditions have been very favorable for the prune crop in the Santa Clara valley the past two months, and estimates of the size and

quality of the crop are growing steadily, according to J. Luther Bowers, of Morgan Hill, who favored us with a call this week. Mr. Bowers has long been a leading grower in the valley. The dry season has had its effect, but has been very largely offset by the moisture in the air, giving the trees a chance to make full use of the moisture in the ground. Conditions are very similar to those of 1898, when Mr. Bowers was farming at Saratoga and got one of the best crops he ever obtained from his orchard and large sizes with them. The winter was drier than last winter and also followed a dry year, but the early summer was so cloudy that the prunes grew finely and came out as stated above. The prunes in the valley are much larger than usual at this time.

Striking examples of the benefits of good tillage can be found through the valley, especially when plowing was done in time. Some orchardists were doubtful of the future in the middle of winter and plowed in January, and occasionally earlier. Others expected late rains and put off plowing until too late. The result is that when a person is on a hill he can look down and see one orchard green and fresh, and another, perhaps adjoining it, that is yellowish and unthrifty. The first is found to be early plowed, the latter late plowed.

A good many sales are being made on a 33/4c. basis price in parts of the valley. There is a belief that prices will later be better than that, but a good percentage of the growers feel that they had better sell at that figure than hold for a higher price, and money is so tight that it looks good.

KILLING FLEAS IN BASEMENT.

To the Editor: We find in our basement a large number of small fleas, which infest the clothing when anyone enters, but can be brushed off and don't bite. Can you tell us, in your columns, just what you think is the best manner of destroying these pests. We kept a small dog there last winter, but until two weeks ago we had no sign of fleas.—Subscriber, Los Gatos.

Fleas breed best in dust, and a very good way to get rid of them is to make a thorough cleaning up of all dust and dirt in a basement or barn, or wherever they may be. A good wetting down, in cracks and everywhere after the cleaning up will pack the dust, and if you do this several times without giving the dirt a chance to dry out any more than is necessary, it will be a great help in overcoming these insects. If your basement is pretty tight, or can be made so, spread around a good deal of flaked naphthalene and close up the basement tight for 24 hours or as much longer as is possible. An application of quicklime, carbolic acid, a cresol dip or some such material to the cracks or places where the fleas develop will also be a great help to preventing their further increase.

BING CHERRY IN SONOMA COUNTY.

To the Editor: Is the Bing cherry a success here, and would you advise planting it for a commercial orchard?—Grower, Healdsburg.

According to Wickson in "California Fruits," the Bing is an approved variety for the upper coastal region, in which your location would fall, but is not as highly approved for that region as the Black Republican, Mezel, Royan Ann or Black Tartarian. In cherries and nearly every fruit, several varieties are desirable so as to lengthen out the picking and marketing season, but this is more true of cherries than almost anything else; so even if the Bing would be the best variety, it would be unwise to plant out a complete orchard of it. To determine what to plant, prospect a bit on the marketing side and find out what the people who will handle your fruit think, and that holds true everywhere. In your locality, see Horticultural Commissioner Galloway, who should be able to give you more sound advice culturally and otherwise than anybody you could get.

Berry Pests and Pointers.

To the Editor: You will find enclosed a sample of a stem from a Mammoth blackberry. Will you kindly tell me what is the disease and what can be done for it? It kills all the old wood in the tops of the vines before they mature the fruit. Loganberries are affected by it, but will last several years longer than the Mammoth. Will the root-gall on loganberry affect young apple trees where they are planted between the rows of trees? Can you tell me where I can get young plants that are free from disease? Is there a good market for the Himalaya berry? Could you recommend planting several acres in place of loganberries?—Subscriber, Paradise.

This is not a disease, but an injury by an insect boring its way down into the stem, which naturally plays havoc with the wood above it. It is quite surely the raspberry horn-tail, or the cane-borer, which was spoken of several weeks ago in these columns. Owing to the number of inquiries about it, and the general amount of damage being done, it is worth while to go into detail about it. The adults are wasplike insects about a half inch long and very active. They come out of the canes in spring and the females soon lay eggs in the tender tips of the young shoots. The proper time to get after them is then, as the locations of the eggs can easily be seen and destroyed by squeezing.

The eggs soon hatch and the larvae eat their way up toward the tip, which causes it to wither and die. It is this injury that causes much notice. As the tip dies, the larvae turn and go down into the canes, as in the sample sent, also injuring them greatly, though possibly not killing them for some time. These larvae increase in size and transform in the fall into pupae, and next spring come out ready to mate and lay eggs to make the same kind of trouble. The only way to attack them is to pinch the spots where the eggs were laid; then those that escape and cause the tips to wilt should be destroyed by cutting off the tips below the point of injury or cutting off the canes when they show damage. Likewise, the insects work on the wild rose, and cutting all those out around a place will prevent enough adults from developing to permit little damage to be done, always provided the berries are well looked after.

The root-gall on loganberries will not affect apple trees near which they are grown. We cannot in these columns make any discrimination between nurserymen or dealers of any kind, but believe that any reputable, well established dealer can provide good goods. Every county, with one or two exceptions, has inspectors to examine plants coming into the county. Butte county has very efficient inspection, which should prevent any diseased plants from coming to you, and you will not be liable for charges on plants which they hold up. Inspection against the borer is unnecessary, and you can easily get vines free from root-gall.

There is a good market for the Himalaya berry, though very few are yet sold. The price runs usually a little better than for the Mammoths sold at the same time. The Himalaya is, however, largely a yard berry, not one which professional producers have found very profitable owing to cultural difficulties, including cost of picking and the method of growth of the variety. If you find that you can afford to raise them for the same price as Mammoths, you will evidently find it profitable to set out an acre or so (you are the best judge of that), but ordinarily it is not con-

sidered a very promising variety for the commercial grower.

CONTROL OF SQUASH BUGS.

To the Editor: We are troubled with pumpkin bugs. Please tell us what to do for them.—A. K., San Jose.

Probably the best way we could answer this query would be to start by quoting A. F. Rufert, Fowler, who in the PRESS of June 22, 1912, answered a similar inquiry. He states: "I have raised pumpkins for the last nine years and always get a good crop, though some seasons the bugs are bad at the start of the season. When the bugs first make their appearance in the field they can be easily disposed of by hand picking and dropping into a bucket containing about two inches of water with about one-fourth inch of kerosene on top to kill the bugs. The bugs will be found to be in colonies, some hills having a couple of dozen bugs and then several hills none at all. The picking should be done in the morning, as the bugs are apt to fly in the warm part of the day and scatter where already picked. Two persons can pick over an acre in one and a half hours, and two pickings are usually sufficient for a season, as after the vines begin to run over the ground pretty well the bugs will not be able to hurt them much. A pair of thin old gloves will help to keep off one's hands some of the perfume from the bugs."

That is as definite as could be desired, and a point of special importance is that the sooner the work starts the fewer bugs to pick. Cleaning up of all old vines in the fall and removing litter in which the mature bugs hide for the winter will permit less eggs to be laid in the spring and there will be fewer bugs to pick as a result.

IRRIGATING YOUNG ALMONDS.

To the Editor: Last March I planted in a soil, part of which is dry bog and part chocolate loam, almonds of three varieties. Drake's on peach root, Nonpareils on almond and Ne Plus Ultra on almond root. I dynamited the holes and ran about 200 gallons of water into each hole before planting. About 95% of the trees have started growth, but the Drake's have made much more growth than the other varieties on almond roots, which seem to be in a somewhat dormant state, the leaves of some being slightly wilted. All the trees were watered since planting. I have been told I made a mistake by throwing water in the dynamited holes. What is your opinion? When the holes were watered the ground was very dry and the water disappeared in a few minutes.—M. M. R., Planada.

If the ground was very dry and the water disappeared in a few minutes, the probability would be that you used too little water rather than too much, at least that is our opinion. Dry soil of fine texture can suck up an awful lot of moisture, which can be drawn off so far, or so widely distributed, that there will not be enough for the immediate vicinity of the roots. With ground so dry there would be no possibility of injurious gases from the dynamite affecting the roots. Why the Drake's did better than the others cannot be said off-hand, provided each received identical treatment. The Drake's Seedling, for one thing, is a strong grower and a stronger tree than the others, which might be an explanation. Another is that the peach roots, for such heavy soil, are better than almond roots, which like a very light soil, and may have taken better with the small amount of moisture available. This is under the

supposition that your soil was very dry. You, by examination, can tell best about that. This has been a fine season to irrigate wherever irrigation has been possible.

SUMMER BUDDING.

To the Editor: On page 259 of the issue of March 1, under the head "Grafting," you advise a correspondent to bud pears and cherries in July. I have been under the impression that the buds must be dormant when used for budding, which I understand is in the spring before the leaves start. Am I wrong?—K., Pasadena.

You may not be wrong, but you are only half right. The budding you are familiar with is the common and standard kind, but not the only kind, as summer budding is frequently practiced in California and is becoming more popular every year. Most of what we could say on the subject would be a rehash of Prof. Wickson's account of budding, in "California Fruits," and would advise you to send for a copy, or hunt up one at the public library. We quote from this book briefly, to give a hint of the method of getting buds for summer work, as follows:

"June Buds.—For multiplying varieties very fast, buds are kept dormant in a cool place; or, by pinching off the top shoots of the current year are forced to mature buds very early. These buds are put into seedling stock as early in the season as possible. After budding, the top of the stock is girdled with a knife or cord, or partly cut away, and growth is forced on the bud so as to give a small tree at the end of the first summer. This method of propagation is growing in popularity in this State, especially in the foot-hill districts, where small trees are preferred for transplanting.

BEETLES ON APRICOTS.

To the Editor: I am mailing you under separate cover some beetles. They are eating all the leaves of the apriots. What are they, and what shall I do to get rid of them?—Z. W. W., Ontario.

These copper-colored beetles, which are about the size of a honey bee, or a little larger, have the scientific name *Seriea fimbriata*. They are a native insect and are found in the big valley as well as in the canyons of southern California. They come from the ground some time in May and feed voraciously for a short time on many varieties of native vegetation, and also quite often on apricot leaves and other cultivated crops, then disappear about as suddenly as they came. They go so quickly that nothing ever is done against them. If paris green or some other arsenate were used at once, it would very probably control them, but usually they can be expected to do just about so much damage and no more. It is doubtful if it is worth while to try to control them.

IRRIGATION OF POTATOES.

To the Editor: Will you kindly tell me when is the proper time to irrigate potatoes, before they bloom or after they bloom, and do they require much water?—Subscriber, Arboga.

It should never be necessary to irrigate potatoes after the bloom appears. Potatoes do not need much water, and there is danger of giving them too much. Whatever water is given has also to be very evenly distributed and should be put on early. It is absolutely essential to see that there is no check in the growth of the plant, for once the growth is at all checked by drouth, and irrigation is done, a new lot of potatoes start and new and old growth of tubers are worthless. Give what irrigation is needed early and make cultivation do the rest.

The Design of Small Septic Tanks.

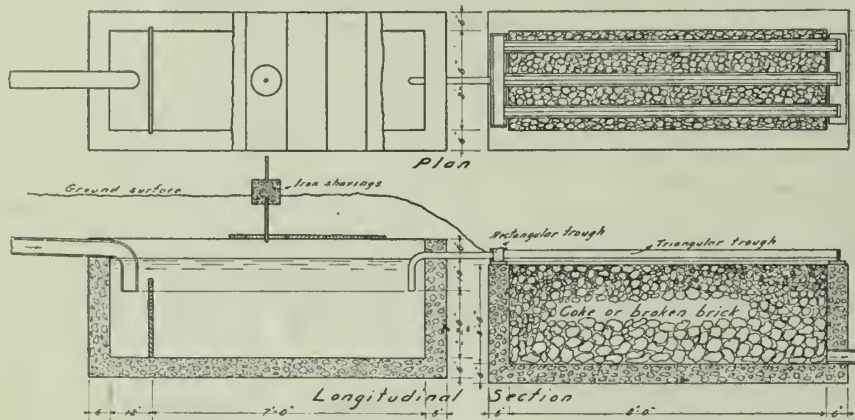
[Contributed to the PACIFIC RURAL PRESS
F. W. KERNS, San Francisco.]

[Early this spring several articles on septic tanks and the disposal of water from the house appeared in these columns. In response for a demand for detailed information on the latest ideas regarding this, the following has been prepared.—EDITOR.]

A small septic tank that will give satisfaction for several years may be built of redwood, provided that special pains are taken to make it waterproof. A much more satisfactory and a permanent job will result if it be built of concrete. The concrete walls and floor may be made as thin as four inches, but the cost will be little more, and a better job can be had if they are made six inches, as the concrete can be tapped better and made more impervious; this is particularly the case where re-enforcement is used. Re-enforcement costs but little and will prevent shrinkage or settlement cracks. The sand and rock or gravel should be graded to secure as dense a mixture as possible and mixed in the proportions of one part

hours is now considered sufficiently long to obtain all the advantages of settlement and septic action, without carrying the latter so far as to interfere too seriously with the subsequent treatment necessary. It was formerly the practice to keep sewage in the tank from eighteen to twenty-four hours. As the sludge should be cleaned out when it has about half filled the tank, about three-quarters of the volume below the sewage level should correspond to an eight hour storage period. This will give a longer storage period just after the tank is cleaned, and a shorter period just before cleaning. As the amount of sewage varies daily, has a maximum during the day, and decreases to nothing during the night, the storage period will necessarily vary, so it is useless to determine the volume of the tank to be used for storage of the liquid too closely.

The amount of sewage varies from twenty-five to one hundred twenty five gallons per person per day; this is such a wide variation that the average flow from any particular premises can best



of cement to six of aggregate; a volume of hydrated lime equal to ten per cent of the volume of cement used will increase the density. The inside forms should be removed as soon as the concrete will stand, and the inside surface of the tank plastered with cement mortar, made of one part of cement to one and one half parts of sand.

A cover for the tank is not absolutely necessary, (though desirable) except in localities where wind would disturb the surface enough to prevent the formation of the mat, which is the natural cover that begins to form after the tank has been in operation a week or two; it is composed of hair and similar materials that do not decompose, together with small particles of sludge. It is a leathery substance and may attain a depth of several inches and become a source of trouble, unless sufficient surface area is allowed in the tank; this should be at least one square foot per person.

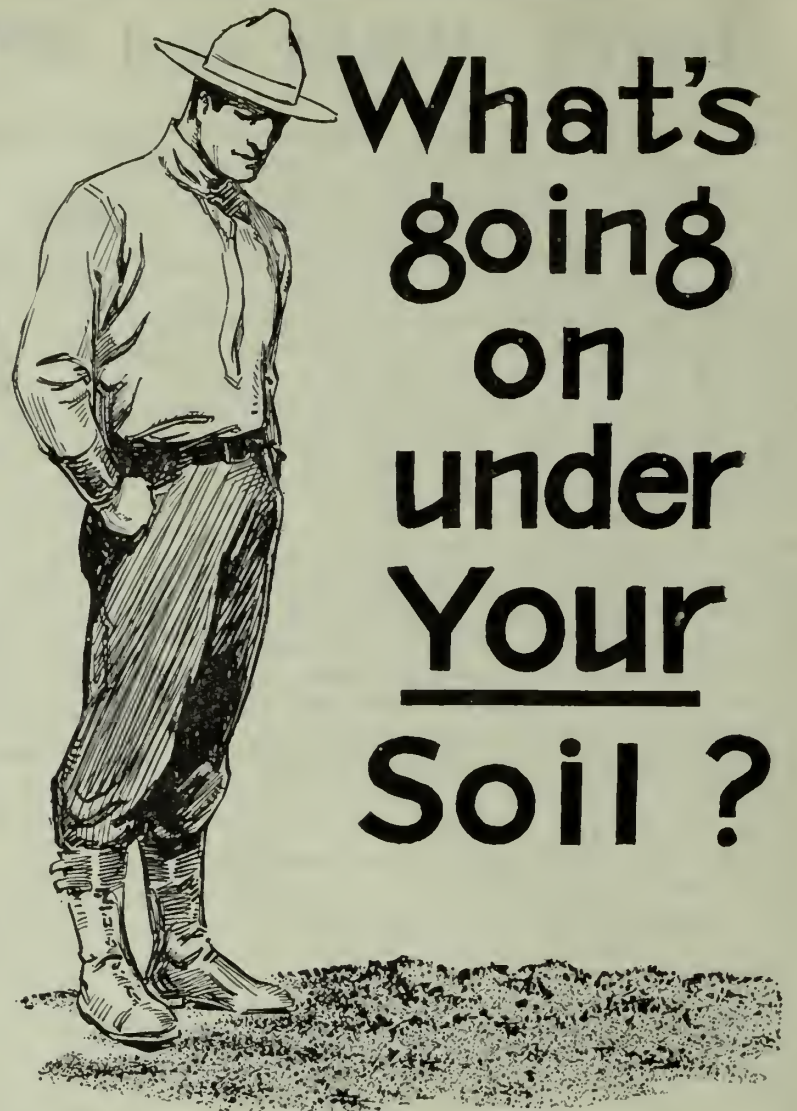
If the tank is below the ground surface, a cover may be made of boards laid across the top and earth thrown on these until the original ground level is restored, so that, except for the vent pipe, no obstruction is offered, even to a plow. A vent pipe should always be inserted to prevent the accumulation of gases, which rise in considerable quantities. If an enlargement be made in the vent pipe and this filled with iron shavings loosely placed, they will combine with the hydrogen sulphide and lessen the disagreeable odor therefrom.

The length of the tank should be at least three times its width or depth, to allow sufficient length of path for the settlement of sludge. As ninety-five per cent of the material in sewage that is capable of settlement will do so in about an hour and thirty minutes, retention of sewage in the tank for a period of eight

be estimated by the owner. The amount of sludge deposited from domestic sewage also varies widely, but it is safe to allow the deposition of two cubic feet per person per year. As the space allowed for sludge is usually made of such size that the unpleasant job of cleaning is attended to but once in six months or a year, there is also considerable leeway allowed as to this space. Sufficient volume should be allowed above the level of the outlet to prevent any overflow from a sudden rush of sewage. As the outlet is large compared with the discharge pipe from sinks, basins, etc., there is not much danger from overflow unless several connections happen to discharge at once.

The inlet and outlet pipes should both be placed about one-third of the distance down from the sewage surface to the bottom of the tank; this introduces the sewage with as little disturbance as possible to the sludge and mat, and allows only the clearest of the liquid to be discharged. As the discharge of sewage is distributed throughout the day, the flow of the effluent will be intermediate between that desirable for an intermittent filter, and the flow desirable for a trickling filter. Both forms of filter are used, (though the latter gives the best results), hence any form of siphon or floating weir is unnecessary. A floating weir draws the liquid from the surface, carrying out sludge, floating material and particles of mat, and is apt to become clogged. Baffles are of little value in large tanks, but in small tanks, it is well to place a baffle just in front of the inlet pipe to prevent objectionable currents, though the baffle will increase the tendency of the sludge to collect in this end of the tank.

The time for cleaning out the tank will be indicated by the larger amounts of sludge carried out in the effluent. The



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liquid should first be removed, by pumping or other means; it may be disposed of in the same manner as the effluent, into the filter or tile drains. The water content having thus been reduced as much as possible, the remainder may be stirred up and pumped out, or drawn out through a valve if one can be placed in the bottom of the tank so it is accessible. Thoroughly rotted sludge has the color and texture of dark loam, and has only a slight musty odor. As some fresh sludge will always have to be removed, considerable odor will always be present when the tank is cleaned. If placed on absorbent soil in dry, warm weather, the sludge will dry out in a few days and can be plowed under, though it has little value as fertilizer.

If further purification is necessary to protect a water supply, the effluent should be passed through a filter. This is simply a watertight box, best made of concrete, and filled with coke, broken brick or similar material, the finer material being placed at the top. It should not be covered, but aerated as thoroughly as possible. The effluent should be spread over as much of the surface as possible; this can be done by allowing it to overflow the sides of two or three small troughs placed horizontally above the surface of the filter. The effluent from the filter may be disposed of in any of the ways suggested for the disposal of the effluent from the tank. At least five cubic feet of coke should be allowed per person.

The accompanying sketch shows the proper proportions for a tank and filter to serve a family of ten persons with an estimated flow of sixty gallons per person per day.

THE IMHOFF TANK.—An improved form of tank, utilizing fully the advantages of septic action and removing most of the objections to the ordinary septic tank, has been developed recently in Germany by Dr. Imhoff. This tank is in the form of a well, having a minimum depth of about fifteen feet, so its cost makes it suitable only where the installation of a larger plant is necessary. The tank consists of two parts; an upper chamber in which the sewage is retained only long enough for the sludge to settle out, and from which it passes before it becomes septic; and a lower chamber into which the sludge drops through a slot. The upper chamber is separated from the lower by an overlap that prevents gases from rising back through the slot. In the lower chamber, a thorough rotting of the sludge takes place under considerable pressure, producing a greater reduction in the amount of sludge than the septic tank. On account of its small water content and the entrained gases, sludge from the Imhoff tank occupies a small volume, and drains and dries quickly without offense. Only the completely rotted sludge is drawn off, from the bottom of the tank; this may be done at any time by means of a pipe that extends from the bottom of the tank to the surface, advantage being taken of the water pressure to force the sludge upward through the pipe. It is claimed that very little hydrogen sulphide is generated in this form of tank and that the gases produced are inodorous. An engineer should be employed to design an Imhoff tank; all designs are submitted to Dr. Imhoff for his approval.

Both the septic and Imhoff tanks have been patented in this country; there is no doubt of the validity of the Imhoff patent, but there is considerable as to the septic patent. Several suits have been brought for infringement of the septic patent, but a final decision has not yet been rendered.

The publicity part of the Panama-Pacific Exposition announces that practically

all of the large exhibit buildings for the 1915 fair will be under construction or contract by July 1. In the agricultural section, the new chief, Mr. Dennison, states that the finest collection of orchids ever brought together will be shown. Over 500 varieties will be brought from the Philippines and the Orient. Comprehensive displays will also be made by Luther Burbank, Albert F. Etter and Carl Purdy, covering the latest creations in fruits and flowers.

LUBRICATION OF FARM MACHINERY.

One of the little things that is lacking on a majority of farm implements is a good and convenient system of lubrication. The common oil cup with open top or loose cap is sure to get filled with dirt and grit which cut out the bearings, largely increasing the power required to operate the machine and greatly reducing its period of usefulness.

The hard oil cup, which holds enough oil to last a week or more, is always tight and can be screwed down a little each day, thus insuring a clean bearing and a regular supply of grease. Many of the common implements could be vastly improved by replacing the common oil holes with hard oil cups.

The oil holes can be easily reamed out and threaded to the proper standard and the hard oil cups screwed into them. The amount of work and expense required will be returned many fold in the saving of horse flesh and in the increased life of the machinery.

CATERPILLARS ON APRICOTS.

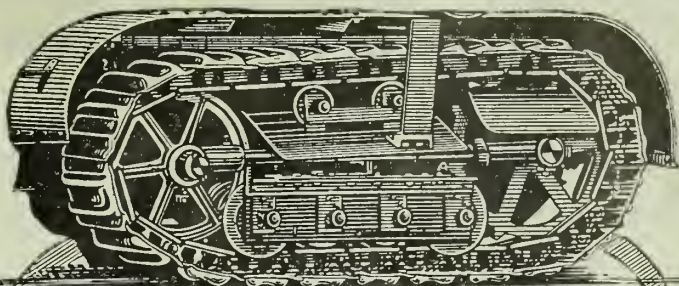
To the Editor: Young shoots of three year old apricots have been eaten by a small half inch long caterpillar. Can you tell me what it is, and how to stop it for next spring?—A. N., Cupertino.

With only that description it is difficult to identify the caterpillar or to say much about its control. If it is the tent caterpillar the best thing to do is to cut off the nests or "tents". If it is a leaf eating caterpillar of some other sort, some arsenical spray will very probably do the business. Would advise you to call upon Earl Morris, county horticultural commissioner, offices at the court house in San Jose, or have him come and see the trees. He would be better able to identify the insect and tell of its control than anybody else. Nearly all such identifications by letter are very difficult unless there are very distinct diseases or certain distinct insect pests which cannot be confused with others.

INJURY TO BLACK WALNUT SEEDLING.

To the Editor: Under separate cover I am sending you a black walnut seedling which stopped growing this spring. Could you tell me why it died?—C. A. M., San Francisco.

The seedling had a top about eight inches long and a root about three feet long, which was perfectly natural for a black walnut. Only the tip was dead and there was sap in the remainder and apparently no injury by disease or insect, though probably it would not have budded out. It is next to impossible to give reasons for such troubles of any kind of fruit tree, large or small, without knowing the surroundings and conditions of growth though occasionally the cause of death or unthrifty condition is indicated though not apparent on superficial examination. Possibly the tree died through drying out of soil, perhaps from mechanical injury to the tip, but the owner in all such cases is better qualified to tell the cause of growth than somebody from a distance who cannot know conditions.



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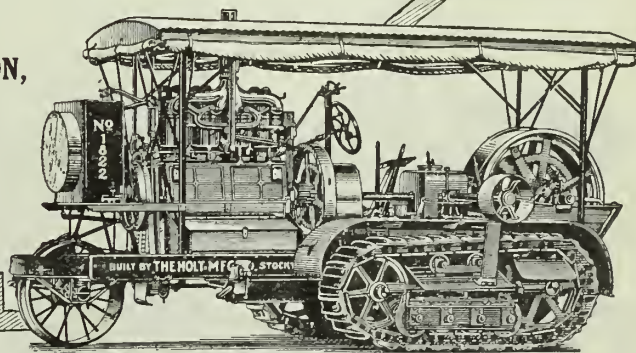
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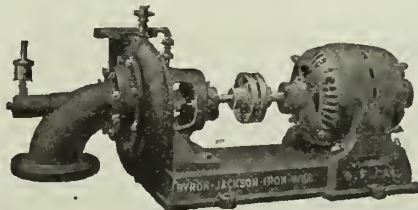
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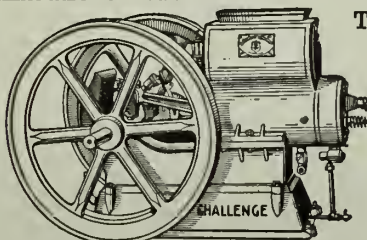
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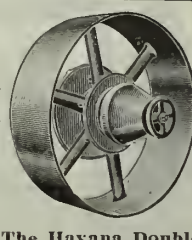
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Treatment of Frosted Trees.

[Written for the PACIFIC RURAL PRESS by
J. E. ADAMSON, Pomona.]

It goes without saying that the treatment of frosted trees depends largely on how badly they were frosted. Trees that are frozen back very seriously should of course be cut back to a point where the wood is not injured, the cut being treated with wax if it is a large one, and with paint if it is a matter of one of the minor limbs.

Results have amply proved the wisdom of the advice given by the staff of experts who were with Dr. Webber on the trip through the citrus belt, a short time after the freeze. The word then was to let the trees alone until there was enough growth to show how far the injury extended back toward the trunk. The writer has lately passed two groves of lemons, one of which was pruned as soon as possible after the freeze, while the other was left to its own devices until the middle of April. The one that had been pruned early showed serious die-back from the point of cutting, and the leaves were small and few, while the other was putting out healthy leaves, and showed plainly where to cut, without danger of wasting either labor or good wood. Both of these groves looked about alike before the freeze, and were hurt to the same extent, being side by side, on the same class of soil.

Some trees I have seen which were injured so badly that all the limbs had to be cut off. In this case it will be necessary to whitewash the trunks to prevent

sunburn. I have noticed some trees where the cut was made to the point of growth irrespective of the condition of the wood below the cut. If a limb has the bark seriously split it will never grow healthy branches, however well it may be treated.

There are such wide differences in the amount of damage done citrus trees that no set rule can apply to all cases. The



FIG. 1. VIGOROUS LEMON TREE.

tree shown in Fig. 1, is an orange tree that two months ago was almost entirely defoliated, yet there is no dead wood, and growth is vigorous, and it would be

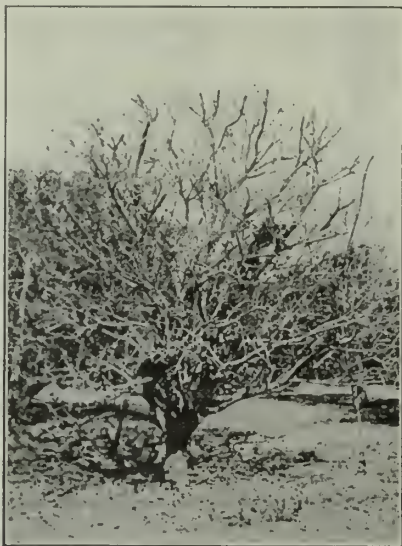


FIG. 2. TREE PRUNED TOO SOON.

useless to do any trimming. Fig. 2, is a lemon tree which was pruned soon after the freeze to where the owner thought the damage extended. Notice that there is little growth above the crotch, and the tree will have to be re-cut to a point where the trunk is large, and is a case where the end will require waxing to prevent splitting.

A slight digression might not be amiss here to state that less than half a mile from these trees there are orchards where the fruit is being picked practically free from frost as a result of orchard heating.

Care of frosted trees apart from the matter of pruning would seem to be a matter of good consistent orchard work. If the trees have lost a large part of the top, it would foolish to expect them to bear, and as foolish to dose them with fruiting fertilizer. The top being in the minority will most likely put on plenty of sucker growth in the effort to cover the naked stems and these suckers will need caring for leaving enough to digest the food sent up by the roots, but not enough to



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cause any overcrowding of the new branches to be formed.

Suckers to be formed into branches for permanent use should not be cut back until the bark has hardened or ripened and care must be taken to see that a bunch of small suckers does not grow from the cut. Never let two limbs branch from the same point as it makes a weak place that it will be very likely to split later on in the life of the tree. If the

trees are very much reduced in size it will be a wise move to use some of the excess water in growing two cover crops a year, to build up depleted humus and nitrogen.

The last but by no means the least of the things to be urged for the good of the frosted grove would be to see that it don't get a return dose next winter, by getting in line for frost protection. If you only have frost once in twenty years you cannot afford to take the one chance, and if the chance is more frequent you surely cannot take the chance.

Care of Frosted Trees.

[Written for the PACIFIC RURAL PRESS by J. B. NEFF.]

The freeze of last January has produced a condition in citrus trees which requires close attention if full and profitable production is to be attained. Various degrees of damage will need different treatment, but the trees which were slightly frozen back and largely defoliated will need the closest attention. Where the damage has been so great as to kill branches back to the trunk a new head can be formed, and where the damage has reached below the head, but not below the bud, a single stem should be selected and the new tree formed from that. The defoliated trees will send out numberless small branches, and a great many of these must be taken out, otherwise there will be a mass of twigs too small to produce fruit of a profitable size.

This mass of twigs will have a small foliage and will bloom profusely, but because of weakness will drop most of the young fruit and that which is left will be small when matured. A large amount of pruning will be required to get branches which will be sufficiently vigorous to produce marketable oranges, and to get a growth of large leaves which are needed to manufacture material to make the oranges.

It will be impossible to thin out the small twigs on each branch, but by going back along the large branches two or three feet, smaller branches may be found which can be removed and in this way openings be made which will not be too large, and at the same time give light and air to make strong growth on the remaining branches. Strong growth and large leaves are necessary to produce profitable crops of good oranges and the pruning must be done with that in view. If the trees are too close together, or the soil is not fertile enough to support all the growth on the trees and at the same time make a vigorous growth of strong branches and large leaves a more severe pruning must be done.

The pruning in all cases to correspond with the fertility and number of trees to the acre. The trees should be pruned so as to have openings in the outside like large corrugations and not of the close conical form.

JUNE BEETLES ON ROSES.

To the Editor: In a jar I am sending you will find some big grubs which are in the ground around my young fruit trees. Can you tell me whether these are cutworms or not, and how to kill them.—E. G., Cohasset, Butte county.

Geo. A. Coleman of the entomological department of the University of California identified these as the grubs of the June beetle. They develop slowly and although they eat on the roots of grasses and other plants they cannot do as much damage as smaller grubs that would develop rapidly and therefore feed much more voraciously. So little damage is done that no methods of control are ordinarily needed or advised.

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AGRICULTURAL REVIEW.

With the Fruit Men.

G. L. Huiquist, who is representing Eastern owners, set out 250 acres of peaches and walnuts the past season near Butte City. The land is divided into 10 and 20-acre tracts, and as soon as possible the owners will remove from the East and occupy them.

The first car of apricots from the San Joaquin valley for the season was shipped from Famosa last week. The fruit is moving out rapidly from many points this week.

C. W. Beers, horticultural commissioner of Santa Barbara county, states that considerable citrus planting is being done this season. Already five carloads of nursery stock has been received and set out. Irrigation from wells is being rapidly extended. In the northern portion of that county apricots are reported a banner crop, cherries above normal, apples have made a heavy setting, and peaches and pears will be above an average. Most of the grain is being cut for hay.

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Products.

From Escondido, San Diego county, the report comes of big crops of all kinds of deciduous fruits, grapes included.

Fruit crops in Yuba and Sutter counties promise big yields this season. An estimate from Yuba places peaches at 70% of last year's yield of 500 tons; pears, 70% of last year's crop of 1300 tons; plums, 60% of last season. Sutter county, almonds half crop, apricots 10%, cherries 75%, table grapes heavy, cling peaches 100%, Muirs 75%, plums 10%. Prunes, a good crop.

A move is on foot to secure the appointment of a horticultural commissioner for San Francisco county, the officer to also have jurisdiction in Marin and San Mateo counties. One of the chief functions of the office will be to inspect importations of fruit and vegetables at this port.

Heavy citrus plantings are being made around Delano, Kern county, this season. By July 1st, 26,000 young citrus stock, besides 21,000 olive seedlings, will be planted there.

Reports from Fresno state that practically all of the 1913 crop of raisins has been contracted for by the Raisin Corporation. Only two firms have offered to sell raisins and they have but few to deliver.

A bulletin issued by the California Cured Fruit Exchange, on June 9th, states that prune prices are ranging from 3 3/4 to 5 1/4c base price, owing to sizes. The domestic trade does not want prunes lower than 60s, while foreign trade has taken as small as 90s. In the bulletin Mr. Dargitz insists that peaches should bring from 6 to 7 cents dried, and that if growers will hold out they will secure those figures.

Land Development.

A census just completed shows that 292 people have moved onto the land in the vicinity of Fairmead, Merced county, within the past six months.

Last week Francis Cuttle sold the last of his orange groves at Riverside, consisting of 60 acres of valencias and 50 acres of navels, to Los Angeles people. Eight years ago Mr. Cuttle bought 637 acres of land there, which he developed and has since sold.

L. A. Turpen last week sold his 640-acre ranch near Montpelier, Stanislaus county, to John Harder for \$35 per acre. The land is said to be adapted to orange culture and the new owner proposes to set it to citrus trees as quickly as possible.

An Oroville paper says that southern California citrus growers are endeavoring to secure 1000 acres of good land with water rights near that town, which they propose to set out to oranges.

J. W. Forgeus last week purchased 4,000 acres of fine fruit land in the Capay valley, near Rumsey, which he will subdivide and colonize in small tracts.

The new irrigation system of the Montague Irrigation Co. was tried out for the first time last week. Siskiyou county is keeping up with the balance of the State in the matter of new enterprises, and this new water system, capable of furnishing 1,080,000 gallons per hour, is but one of them.

New wells near Davis are supplying plenty of water for irrigation. At a depth of a little over 100 feet, water in abundance is found.

Walnuts Will Be Small.

J. B. Neff, of Anaheim, tells us that from his observation he believes the growing crop of English walnuts will be about as large in quantity as last year, but

that the nuts will be smaller than they ordinarily are. The blight has been less active than usual, but many groves are affected by the aphid, a little bug that infests the leaf on the under side and hard to get at to spray.

Fruit Crop Prospects.

Conditions at this time around Dixon, Solano county, are not very promising, as it is estimated that only a fair crop of prunes will be harvested, and the almond crop is very poor.

In Yolo county, Horticultural Commissioner Hecke stated that it was the hardest year to foretell fruit crops of any year since he had been in California. This is caused by the fact that although the trees are fairly well filled with fruit in unirrigated sections, it is problematical whether there is enough moisture to mature the fruit. In orchards where irrigation was carried on, very good crops are expected, in view of the year, and these orchards will bring up the average production to about the following figures: Prunes, 60% of last year's crop; peaches, about 75%; pears, 75 to 80%; apricots, 40%. The present outlook for grapes is that they will be a bigger crop than last year.

As before stated, moisture conditions are so uncertain that it is very hard to say what the crop will turn out to be.

Peach Crop Light in United States.

For the first time this season there has been made public a statement of the shipment of peaches that may be anticipated from the principal peach producing sections of the South during the coming season. The figures are such that California shippers may look forward to a season of high prices and good profits on everything that they forward. Georgia will ship this year about 1900 cars, as against 7300 cars last year. The producing districts of Arkansas and Texas will send proportionately a diminished supply. Nowhere is the crop as good as last season.

Crop Conditions in Fresno County.

A direct representative of the RURAL PRESS, after making an investigation of crop conditions in Fresno county, sends us the following estimate:

Peaches, dried, normal; canning 85% of a normal crop, while last season this county had a crop estimated at 115%. Raisins: Muscatels 100%, Thompsons 90, Sultanas 85, Malagas 90; as against a 100% crop last season. Apricots will make 20%, as against 25% in 1912. Prunes are estimated at 90%, while last year they went a full 100%.

The Grain Crop in Yolo.

The barley grain crop is now being harvested in Yolo and Solano counties and is averaging a good deal better than had been expected. The irrigated land is turning out very good, T. J. Gibson having a large acreage near Woodland which he considers will go 40 sacks to the acre. While of course this is an exceptionally fine crop, it is thought that the irrigated grain will bring the total average up to about 50% of a full crop. Conditions as a whole in Yolo county seem to be in better shape than a good many other districts. Barley is going from 10 to 15 sacks around Dixon.

Live Stock and Dairy.

Dr. C. W. Evans, of Modesto, purchased last week from the E. O. McClure estate 100 head of Holstein cattle for the sum of \$10,000. This is one of the best herds of cattle in Stanislaus county.

W. M. Carruthers has been appointed one of a committee of three, by C. F. Curtis, president of the American Shrop-

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shire Association, to represent the Shropshire interests at the Panama-Pacific Exposition. Mr. Carruthers left last week for a few weeks' trip through the Central and Eastern States. He expects to bring back several carloads of stock.

The official tester of the Stanislaus Cow Testing Association has completed the May test for more than 300 cows. Of this number, 16 cows made more than 45 pounds of butter during the month. The highest score was made by a Jersey cow and was 66.6 pounds.

J. J. Young has perhaps the best bunch of dairy cows in Colusa county on his farm near Princeton. His 17 Holsteins produced butter-fat during the last two weeks of February which brought him \$102. Last year Mr. Young raised 15 head of hogs, which at four months made an average weight of 143½ pounds.

The Dowling brothers, who recently bought a tract of land near Willows, have shipped in from the San Joaquin valley a carload of thoroughbred Holstein cows and a good registered bull. They expect to add more cows to the herd.

Thirty-one cars of cattle were shipped from Porterville to Elko, Nevada, last week. This stock came from the range near there and was sent to Nevada to be fed this summer.

The report from the Portland Union Stockyards of June 6th states that, owing to high water around Portland and heavy receipts from California, the market has lost several points during the week. Average sales of steers are reported to be about \$7.50, bulls \$6, cows \$6.40, hogs \$8.50, and sheep \$5 to \$7.

General Agriculture.

Up until the past two weeks it was thought that California would produce a full hop crop this season, but for some reason the burrs on some vines have come out too early, which may cause a 25% loss in the yield.

A dispatch from Arbuckle, Colusa county, states that the barley crop will be larger there than last year, but below that of normal years. The tule farmers expect a yield of from 20 to 30 sacks per acre.

The seedless tomato has been again discovered, this time in Kings county. The fruit is said to contain a solid pulp of a rather sweetish flavor.

Harvesting of grain is now going on in Yolo county, and while the crop will be short, yet the yield, especially on the lower ground, will be better than was hoped.

The hay crop in the Richvale district, Butte county, will be very heavy this season. A dispatch from there, dated June 6th, states that fully 4000 cars will be shipped from that district this year.

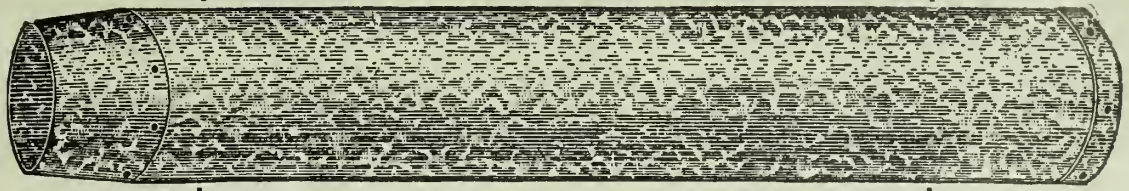
A large meeting of lima bean growers was held at Oxnard, Ventura county, last week, to reorganize the old bean association upon a new basis. A large number of growers signed for the new organization.

The honey production in Tulare county is only about one-fourth the normal this season. Many orders cannot be filled.

A bumper crop of wheat and barley as well as an immense amount of alfalfa hay is reported from the Tulare Lake district, around Corcoran, Kings county. The present planting includes 70,000 acres. The wheat yield is 15 to 18 bags per acre, with a total of 400,000 bags of barley or 25,000 tons and 300,000 bags of wheat or 20,000 tons. The grain is of especially heavy growth and is of high quality. A doubling of acreage is contemplated for next year. This district is the territory formerly covered by Tulare lake and is known as tule lands, a very boggy soil.

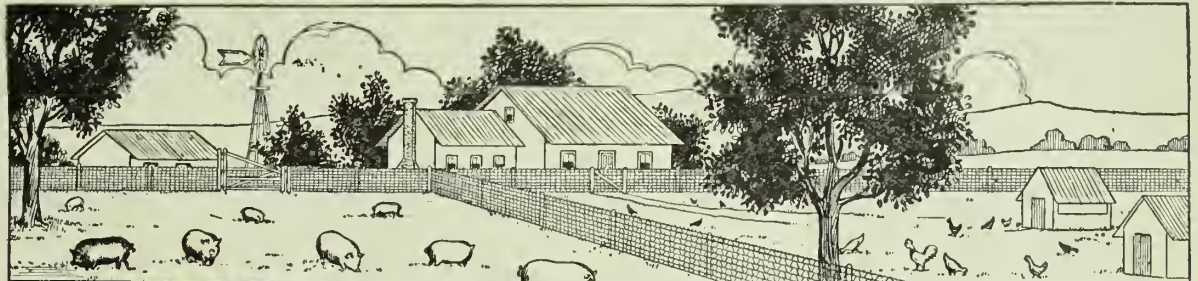
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WATER vs. STOCK IN FORESTS.

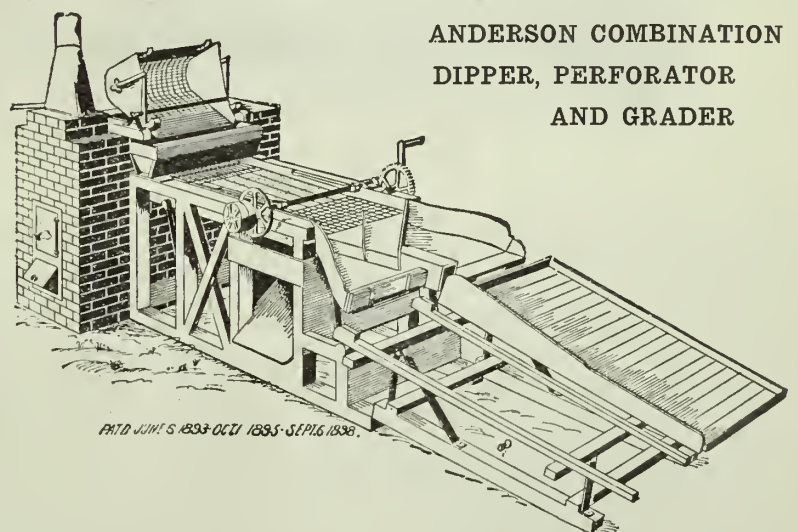
In line with the talk this spring and every year, in fact, about the possibilities of the National Forests for range purposes, is the reminder from the U. S. Department of Agriculture that stock has to be kept off a good slice of the Forests to permit water for domestic purposes in various municipalities to be uncontaminated.

Secretary Houston, for instance, has just approved an agreement between the Department of Agriculture and the town of Safford, Arizona, by which the Forest Service and the town will co-operate to conserve Safford's water supply, which comes principally from the Crook National Forest.

This is the latest one of many such agreements. According to the figures of the Forest Service, there are nearly 1200 cities and towns in the West which derive their water supply from lands within the National Forests. Where these cities desire it, the Government joins hands with the citizens for the purpose of maintaining a permanent and pure water supply.

The Government claims that stock raising, or any other occupancy of the land, which ordinarily would be encouraged, would be inadvisable on a watershed which forms a source of drinking water. The Forest Service recognizes that water is as necessary a commodity for wooded hillsides to supply as are sawlogs or mine props. A watershed area may offer an opportunity to furnish the greatest benefit to the largest number through supplying an unpolluted source of water for domestic purposes.

Contracts like that just made with Safford provide that the land may not be used without approval by the town, except for the protection and care of the forests. The Government agrees to ex-



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tend and improve the forests by seeding, planting and forest management so far as the funds for that purpose are available. The city, for its part, assists by paying the salaries of the additional guards necessary to carry out the agreement, and contracts to bear the greater part of the cost of any improvement work which it considers immediately desirable.

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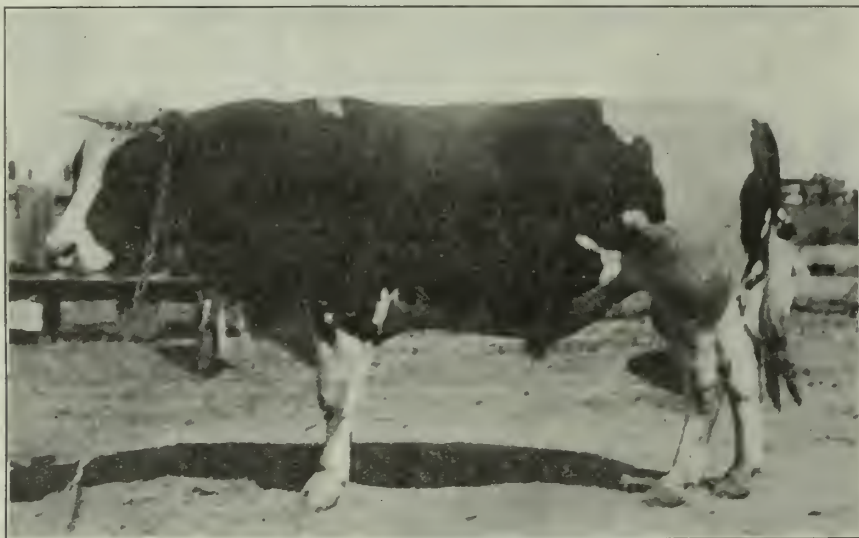
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History of a Holstein Herd.

[Written for the PACIFIC RURAL PRESS by
J. C. LOOMIS.]

The RURAL PRESS recently printed a story of how a California dairyman had made money on \$1000 capital with Jerseys, and we give in the following a resume of how one of our purebred Holstein breeders has greatly increased his capital in a short time. Six years ago J. W. Benoit was dairying on a rented ranch near Modesto with 16 head of grade stock, and like many others at that time found that dairying on rented land with scrub stock meant lots of work and a small yearly net income, so decided to sell the grades and buy purebreds. From the 16 head of grades he realized \$150 less than the cost of five head of purebreds which he purchased for his foundation, and these were old cows from 10 years up, but they were among the best cows in the State at that time, having been bred by Mrs. Jane Stanford and afterward sold to L. A. Hall.

One of these cows, Hermiana A., was champion and grand champion at the California State Fair 1907, and another, Daimasella, had a 115-pound a day test by the Stanford University.



Acme Pontiac, Herd Bull of J. W. Benoit.

Running on a small capital, he continued to rent, and with a few head of well-bred grade stock and his purebreds, things began to come a little easier, and as he was fortunate in getting mostly heifer calves, the purebred part of the herd built up very rapidly. After the fourth year, Mr. Benoit decided to buy his own land, so purchased 40 acres of fine alfalfa land located about four miles west of Modesto, which at present is all seeded and as fine a stand as one could wish for.

At the time of our visit there were 35 head of the purebreds on the ranch, besides a few grades, but the grades will be sold this year.

Mr. Benoit early saw the benefits of testing and weighing his milk, and in this way knows his cows' strength from a milk-bucket standpoint, and next fall he expects to put several of his cows in official test, believing they will make some fine records.

Along with good dams, Mr. Benoit made it a point to get good sires, the first bull being Solano Captain of Riverside, his dam having a record of 19 pounds of fat in 7 days and his present herd bull being Acme Pontiac, who is a half brother to the world's champion cow, Pontiac Lass, who has a record of 44.51 pounds of butter in 7 days, owned by Stevens Bros. of New York.

Like most everyone else, the hired help problem arose as the herd increased and was found very unsatisfactory, as Mr. Benoit found that when he milked, some of his cows gave 1½ pounds a day and his hired man was only able to get a pound a day from the same cows. After this experience, he did his own milking until about a year ago, when he decided to try the milking machines.

Two Hinnman milkers were installed at a cost of \$230 complete, with gasoline engine included, which are still used and have proven very satisfactory as well as a money saver. From his ex-

perience, Mr. Benoit considers that two machines to the man is the correct number, and gives as his reasons the fact that with two machines working, a man can do the stripping as soon as a machine is finished, and by the time the first machine is changed and that cow stripped, the second machine is ready to be changed, and so on for the entire string, the object being to do the stripping before the cow is compelled to wait long, which is apt to make her hold up the last part of her milk.

Where three or four machines are used by one man this cannot be done, as there is enough stripping alone to keep one man busy behind four machines.

With the machines considerable money is saved in wages, as a milker would cost \$60 per month, counting board and lodging, and the machine costs 5 cents per day for gasoline, the yearly expense for upkeep being very small. By having the machines only, one man is hired during haying season, Mr. Benoit doing all of his work at other times of the year. It might also be said that with the machines as much milk is produced as when milked by the owner.

While Holsteins have been the chief factor, registered O. I. C. swine are also bred to run in connection in the place of scrub hogs.

Having owned a part interest in a stallion, only good mares were kept for the farm work, with the result that several fine young colts are raised yearly, which greatly increases the gross revenue. This is a practice that more dairymen should take advantage of, as good-sized and well-bred horses always bring a good price and make a very profitable by-product.

From Mr. Benoit's experience, he considers it advisable for those expecting to go into the breeding business to be more careful as to the quality and not so strong numerically, if it comes to a choice of the two issues, as with only a few extra good cows so much culling does not have to be done, and in the long run more high-grade stock will be had.

While the real increase in valuation is not given here in dollars and cents, anyone familiar with the price of purebred Holsteins in California and with the price of alfalfa land in Stanislaus county can soon figure out what 35 head of such stock and 40 acres of such land is worth and compared with what 16 grade cows would bring six years ago, it will be seen that Mr. Benoit has with good stock greatly increased his financial circumstances.

STAVE SILOS IN CALIFORNIA.

To the Editor: Could you inform me through your valuable paper who and where are the manufacturers of stave silos in California, if there are any.—Subscriber, Santa Rosa.

As far as the writer knows, there are no manufacturers of stave silos in California. Stave silos may be all right in more humid climates,

but in California wood dries out so rapidly that it is exceedingly difficult to keep silage sound in a stave silo. Several have been built and used in California, but we have not found one that gave very much satisfaction, and have seen a number that didn't, and some right close to San Francisco bay, too, where they would surely be better than in your location or in the interior. Would say that it would be better by far to build a silo of two by four uprights lined with two layers of resaw and building paper between if you want cheapness, or erect a concrete silo or one of cement blocks and get something that will endure and be done with it, but don't try a stave silo in our dry atmosphere.

METHODS OF HOG FEEDING.

To the Editor: I intend feeding my hogs unthreshed barley, and would like to know how much of this to feed per 100 head of hogs. In connection with the barley, I will either soil alfalfa or feed alfalfa hay. How do you estimate the latter two? Could the barley and alfalfa be fed in racks once per day or should the racks be filled twice per day? I understand that when hogs are on alfalfa pasture one pound of corn per day for every 100 pounds of hogs is sufficient grain feed. I have been feeding corn on this basis, but as my alfalfa is not feneed have been soiling it. Would this basis be all right by this method?—M. M., St. Helena.

Answer by Chas. Goodman, Williams, Cal.

According to Prof. Dietrich, one of the best authorities on swine feeding, the food and water requirements of hogs vary with age. Not knowing the age of the hogs, we will have to assume considerable.

It seems next to impossible to say how much unthreshed barley hogs of any age should be fed, as there is no way, so far as we know, to come at the amount of grain the hog would get in feeding. We would feed all the unthreshed barley the hogs would eat up reasonably clean and let them run on the alfalfa, or if feeding alfalfa hay we would give them all of that they would clean up reasonably well. The barley and alfalfa will make a fairly well balanced ration. It would be better to have the hay cut one-fourth inch and mixed with wheat middlings and fed wet.

The best way to feed the unthreshed barley or alfalfa hay would be in sacks with a box beneath each to catch the waste. However, any method that avoids the waste will serve the purpose. We would keep the feed in the sacks all the time if the waste was not too great.

One pound of corn per one hundred pounds hog weight is not sufficient for best results. Hogs six months old, or older, require 2.6 pounds carbohydrates daily per hundred pound live weight. One pound of corn would furnish only 70% of this, which would leave you short almost two pounds, which the alfalfa would not balance. Two pounds of corn would be much nearer the correct amount.

In feeding hogs during the growing period the greater the variety of feed the better. Hogs will not do their best on any one feed.

NO CHOLERA FROM TANKAGE.

To the Editor: Can Cholera be given to hogs from tankage? The disease has appeared among my hogs without apparent reason, as there are no other hogs that have been near, nor is there running water on the place that could have brought it.—Rancher, Napa county.

Cholera cannot be brought into a herd by tankage. Tankage such as is used as hog food is not made from diseased meat, but from portions of the carcass which cannot be made into anything more valuable, while the carcasses of diseased animals are made into fertilizing tankage. Furthermore, such waste is exposed to cooking in closed tanks at high pressure and at very high temperatures, so that all germs are killed. The cholera germ can easily be carried on the shoes or clothes of a man who has been around an affected herd, and was very probably introduced in that way. Sometimes also it breaks out in an entirely mysterious way, but there is not the slightest chance of the tankage being the cause.

What Kind of a Record?

[Written for the PACIFIC RURAL PRESS by
J. C. LOOMIS.]

Apparently, dairymen are always having issues raised which demand much thought and study, the heading of this article being only one of many.

This study of records seems to be one which buyers of pure-bred stock do not always agree upon, and as in many cases the pedigree of an animal is almost solely relied upon for future results, it would seem very necessary to find the advantages of one over the other, as soon as possible.

In looking over the list of high producers, one is sure to run across weekly records which are indeed wonderful; then he will also find large monthly records; and lastly, the yearly records.

The object of running these tests is to show how much fat a cow has produced in a given time, so that her children or grandchildren can be easier classified as to their butter-fat possibilities, the idea being that an offspring from a high producer is very apt to be a good producer or sire, as the case may be.

The question, then, is which to rely most upon: the 7-day, 30-day, or yearly record; for very few cows are able to be supreme in all of the tests.

Usually we find the 7-day record averages much more fat per day than the 30-day cow. The monthly records made have a greater daily average production than the yearly records, but where cows are put on either of the shorter tests they seldom finish the year with as much fat as a good long-distance cow.

As an evidence of this, we find in the Holstein-Friesian records during May a three-year-old cow with a record of 672.98 pounds of fat, which is a world's record for a year. Her 7-day record was a little over 23 pounds, which in itself was a good record, but alongside of her was a 7-day record which beat her badly.

In order to find out what the comparison for yearly results were, we found that the one with the high weekly record, after having made her test, was continued on for a year's record, at which time she had produced 450 pounds of fat.

As it happened these were both world's-record cows, and one would naturally suppose that a cow that gives 222 pounds of fat more than another would be much more valuable for breeding purposes, but we were informed by a breeder well up in prices that the 7-day cow would no doubt sell a great deal higher than the yearly one, especially if both were sold in the East.

Enquiring still further, we asked this breeder what he considered the best test and why, his reasons given being as follows: "After much study and knowing the business from a breeder's as well as a dairyman's standpoint, I can't for the life of me see why any intelligent stockman should rely upon any but yearly records.

"Take these 7-day records, for instance. In order to make the Register of Merit as a mature cow in the Holstein Association, a cow has to produce 12 pounds of fat in a week. Now anyone who understands the feeding and care of stock can take most any cow with a shell of a body and by careful feeding and handling for a while force the animal to give a larger amount of fat for a week, but she can't hold out long at that pace.

"This also holds good for a monthly record, although the chances are for a better cow at this period, as it naturally takes a better cow to hold out in her flow of milk for a month than for a week.

"Take, on the other hand, the yearly record. In order to make a good yearly record, a cow has to be a steady high producer, and for butter-fat purposes the dairyman is wanting an animal which figures up by the year rather than by the day, week or month.

"By this I do not mean to say that all cows with only short tests are inferior, for such is not the case; but I can't understand why a yearly test should not be preferred to the shorter ones."

Judging by the demand for officially tested, long-distance stock in California, it would seem that the breeder who today neglects to join the

procession will in future years find that he has lost a bet. Assuming that this breeder's views are correct, the dairymen purchasing bulls without yearly records is not getting nearly as much for his money as he would if he gave the subject a little more consideration. That the dairymen are awakening to this issue is shown by a man in Tulare county who has for years been breeding up his grades with bulls which have yearly tests back of them. At present he is wanting a new bull, but is delaying to purchase until such a time as he can get one with an official yearly test.

When all dairymen find the advantage of a yearly test, the shorter one will no doubt be lost sight of.

A NEW FEED FOR WESTERN CATTLEMEN

[Written for the PACIFIC RURAL PRESS by
J. C. LOOMIS.]

Readers of this paper have been kept fairly well posted during the past few months on matters pertaining to silos, growing corn and the feeding of ensilage.

In past articles we have endeavored to show that the silo would help solve a good many dairy feeding problems, as with such poor prospects for feed in sight it seemed that the silo would do more toward solving the question than any other one thing.

When it comes to feeding problems it is doubtful whether any one class of farmers are more interested than the beef and sheep men, but with them the silo has never received much attention here in the west, as most everyone had a mountain range which he could rely upon. As these ranges are yearly being cut up and as land in the valleys formerly used for pasture is increasing in value, a good many are beginning to look into different feeding methods.

Perhaps two of the first silos to be erected with a view to feeding the ensilage to cattle and sheep are being put up by the Delta Construction Company of Sacramento for Thornton S. Glide and J. H. Glide on their ranches located near Davis and Dixon in Yolo and Solano counties.

These silos are made with solid concrete blocks so shaped that steel reinforcing is woven through the entire structure. They are 16 feet in diameter and 45 feet high with a capacity of 220 tons of ensilage.

The difference of these from any so far erected in the State is that all other concrete silos are made with forms. Several advantages are claimed for the blocks, among them being a more uniform distribution of the reinforcing rods and a more finished appearance. The continuous door system is used, so that instead of having to lift the ensilage up in order to get it out through the opening it can be on a level with the opening all of the time saving a great deal of labor.

As this is the first silo experience that the Glides have had, they are going mostly upon results that they have seen from Eastern cattle breeders, and if these prove successful and economical, two more will be built next year. Thornton Glide, in speaking of the silo, states that he has for several years been watching the large increase of them in the East, one instance being on the Hanna breeding farm. On that farm one was tried and found so satisfactory that the number has been increased until at present Mr. Hanna has nine of them, and told Mr. Glide that if it was not for the silo he could not continue with beef stock on high-priced land.

While only corn will be used in T. S. Glide's silo, J. H. Glide intends to use corn for the fall filling and first cutting alfalfa hay for spring filling. In this way he figures on being able to have a good succulent feed all the year.

The cost of building these silos is a little more than for the lumber kind, but it is a great deal cheaper for storage than a hay barn, as where a good hay barn would cost \$8 to \$10 per ton for storage, this silo will only cost \$4 per ton, and built as they are, they should stand for a life time.

If the silo is a success for cattlemen in the East as well as dairymen, the same thing should hold good here, and as has been shown in the past,

dairymen of California report the greatest of success.

An experienced stock handler both for Eastern and Western conditions stated that it was only a short time until the silo would be almost universally used all over the West by everyone having cattle of any kind. He also stated that he had fed sheep ensilage in the East with good results, but found that for sheep-feeding only a very good quality should be used. For cattle, he stated that they had found corn ensilage to be not only one of the finest feeds, but also one of the most economical to handle, as much feed can be raised per acre and it can be very cheaply stored.

Some cattlemen may consider the silo unfitted for our average cattle ranch on account of not being able to grow corn to fill it with, but as this has proven an erroneous idea in valley lands, so we believe it is in most of our cattle districts. It is true that corn has never been very seriously considered as a standard farm crop in this State, as it has in some of the Middle Western States, but the acreage is yearly increased, and wherever Western-grown seed has been used the planter was usually surprised in his yield and quality.

As an instance of this, we visited a stock ranch in Amador county, last fall, which was mostly hillside land. The owner being a new man in this district, enquired about corn possibilities, but was told it was useless to experiment, as it would not do well. As no good reasons were advanced other than the plain statement that it wouldn't grow, this rancher decided he would try some anyway, as he had plenty of land and a mining ditch ran around the side of his hill which would furnish him with water. At the time of our visit the corn was just being husked, and it was about as nice corn as one could wish for; besides this, and what is more important to the prospective silo builder, the stalks were big around and of good height, and would no doubt have yielded from 10 to 15 tons of green ensilage to the acre. As it was, the corn was fed to hogs, and we presume that other than a small portion of the stalks pastured by cattle, it was mostly waste, when it could with the aid of a silo have been made into feed considered by many to be worth from \$10 to \$12 per ton at the present price of hay and meat.

Authorities claim that a 743-pound animal can be wintered on a ration of 44 pounds of corn silage a day, and with no other feed, such as corn, barley or pasture, gain at the rate of a pound a day. This, of course, is when only winter feeding is done with no attempt to fatten.

Assuming, then, that 44 pounds is sufficient feed for an animal, a hundred head would consume 4400 pounds a day. With a 220-ton silo there, as Mr. Glide is building, he should have enough feed for 100 head 100 days. In order to fill a silo of this capacity with corn yielding 10 tons per acre—a very conservative figure—it would require 22 acres of corn.

As almost every cattleman has a good many times 22 acres suitable for corn, there seems very little reason why he should not erect one or more silos.

If under ordinary conditions it is thought unnecessary to use ensilage, the silo may be filled and left that way for several years as a safeguard against drouth years.

GOOD SIRES BRING PROSPERITY.

The way that good sires, both bulls and boars, bring prosperity to a community is illustrated in reports from the Portland Union Stockyards of stock conditions in the Northwest. This institution in its efforts to build up a business, began with the introduction of pure-bred sires and sows among farmers, selling them at cost price. In one case, from a purchase of two sows, there was an output of 81 head at the end of 14 months. Many cases are reported where several hundred dollars have been received from the pig crop from an originally small investment.

The Stockyards Company, in a statement recently sent out, says this about the results of the introduction of good stock:

"Bankers who thoroughly supported this movement and financed same in many instances, say that in no case have they lost a dollar in the transaction, and that the tremendous impetus

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T. B. GIBSON, Woodland, Cal.—Registered Short-horns and Poland-Chinas.

HEREFORDS—Fairfax Perfection heads herd. J. P. Cudahy, Belton, Mo.

HEREFORDS—Gay Lad 6th heads herd. O. Harris & Sons, Harris, Mo.

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REGISTERED POLAND-CHINA SWINE—Prize winners, finest stock in State. \$30 up. M. Bassett, Hanford.

POLAND-CHINAS; large type. The Browning Stock Farm. W. H. Browning, Woodland, Cal.

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given to the hog industry by their far-sighted methods has increased their deposits many thousands of dollars. The receipts of hogs at the Portland Union Stockyards has increased over 100% this year as compared to a like four months last year. Many of the bankers who supported the hog movement are now realizing that there is a tremendous shortage of cattle in the country, and to offset this shortage of cattle they are endeavoring to improve the quality by securing high-class specimens of pure-bred sires which are turned over to the livestock men on the same basis which the hogs were furnished.

"It is a very well known fact that a calf got by a pure-bred sire is worth \$10 more at the age of one year than a scrub of the same age. When we realize that we may count on from 40 to 50 calves from each bull yearly, it is very evident that a pure-bred sire costing \$250 is a splendid investment."

HOG CHOLERA.

(Continued From Page 657.)

REASONS FOR IMMUNITY.—Immunity to disease is a queer thing and not understood. Some material or method of working in the animal's system makes it capable of fighting or ignoring diseases of certain kinds. It may be smallpox or yellow fever in man, or almost any of the other diseases that man by his unwise living has brought upon himself. In hogs, it is in the cholera especially that immunity is noted. For generations cholera may never have come near a family of hogs. When it comes they are swept out of existence, except perhaps an individual or so in a herd which naturally is immune and totally unaffected by the trouble. That corresponds to being born great. The next is achieving greatness, or, in this case, immunity.

That is as terrible an affair as achieving greatness, it comes after great trouble and only with creatures of special capabilities. In cholera, it comes by getting the disease and getting over it, a rather infrequent occurrence, and hard on the hog. Having the immunity thrust upon one's self is a mighty uncomfortable thing for the hog while it lasts, but it is a pretty sure proposition and it saves the herd for the owner.

Immunity is stolen from another hog, which is an uncomfortable thing for that hog, too. For it occurred to investigators that perhaps they could take the blood out of the hog that was immune and put it into the hog that was not immune and that immunity would be given him, too. It is not the blood that goes in, but a portion of the blood, and it does give immunity.

The start thus is with the immune hog that has the disease so beaten that it can't hurt him. It doesn't matter whether the immune hog was born immune or how he got that way, but naturally the surest way is to take a hog that had immunity thrust upon him. They want that immunity just as strong as they can get it, for if he has only enough for himself, the little that can be taken out without killing him won't go very far in the other hog, or hogs, so they make him hyper-immune, or over-immune.

THE PORCINE PHILANTHROPIST.—The hog that is going to make many other hogs immune can fight disease, so they stick some in his veins. His system rises up and fights and makes a lot more immunity, and when the battle is over is very strong. Then the operators stick in more disease and his system battles again, and they keep it up until the main purpose of that hog's life is to rout the cholera that insists upon coming after

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him, and he is a regular walking drug store.

Then come his keepers and draw off all the blood that he can spare, strain off the unnecessary part, and in the remainder have a lot of stuff that can put to rout the cholera in a whole family of pigs. That is the serum. It is stuck in their veins, and when the cholera comes along it calls to mind its battles in the old hog's veins, and says "Scoot," and the cholera gets out of the way. In a little pig a small amount of serum is enough, in a medium sized pig a medium dose is necessary, and in an old boar or sow a whole lot is needed. Thus, people who send for serum don't send by the number of hogs, but by the weight of hogs.

Meanwhile the hog that routed the cholera is put back to recuperate from the bleeding and to develop a lot more blood, and when he is in first-class trim again and can put to rout regiments of cholera germs, he is again hung up and made to give all the blood he can spare. His whole life is devoted to either fighting cholera in his veins or recovering from the bleeding that removed that blood, and finally when his tail disappears, for it is from his tail that the bleeding comes, and a little is cut off each time the process is carried out, the whole lot of blood he carries is let run off, and he goes to the funeral pyre. "And his blood goes traveling on."

CALIFORNIA FACTS.—We are not going into detail about how to get or use the serum or a lot of that routine stuff. The University of California has bulletins and circulars on the subject which will explain everything and can be had on request.

The legislature appropriated enough money to equip a hog serum plant at Berkeley, and the process we described is there going on to the capacity of the plant and of a big herd of hogs. The cost of the serum is merely the cost of the operation, and the more serum that is wanted the more hogs are used and the

more men hired to do the work. It costs about 20 cents to get the serum to give temporary immunity to a suckling pig, and 80 cents to get serum for a 200-pound hog.

There is also a method of operation whereby serum and disease can be put into a hog at the same time, which will give him nearly a permanent immunity against the disease. The cost is a little more than half as much again as the serum alone, but that we will leave to the operator to look after.

We said before that hog raisers were appreciating and using the serum and that it was now an established method of operation, though not, of course, with all hog men by a great deal, for if it were there would be no use talking about it here.

Well, over at the offices of the serum plant they have a large wall map, with pins stuck in every place to which the serum has been sent. In every county, we should judge, in which a hog was kept was one or more pins. Some counties where there are lots of hogs, and plenty of cholera, too, like—well, we had better not name counties that don't deserve praise—there were perhaps only three or four pins.

They say that down in Imperial county they are a live bunch. That county was stuck so full of pins that there was only a rim around the edge that was bare. Every town was hidden and the station had so much work to do that they were away behind with their pins, about 200 pins altogether, if our memory is good, and a lot of those pins were to go to Imperial county. That does not mean that the cholera was bad there, but only that the hog men are alive, and as far as can be known every large hog man whose herd had the cholera had the serum for it. Los Angeles was another county where the pins were thick.

STATE AVERAGES.—The extent of the use of the serum can be calculated by a few figures. There are something over 800,000

head of swine in California, and up to December 31, 1912, serum had been provided for 86,000 head, about one in ten. Not every herd in California, by a big

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margin, has the cholera or has been attacked by it. A rough estimate might make one herd in five, which leaves half the herds that needed the serum using it. The Experiment Station estimates the cost to the hog men of \$30,000 for the serum, and the saving of hogs by it at \$100,000. An extra cost of veterinary charges would have to be added in cases, but this would be only a fraction of the serum costs.

The effectiveness of the serum is next in importance. Of the well hogs treated, 91% were saved, the lost 9% evidently comprising hogs affected but not yet showing symptoms, also hogs into which the serum was not properly injected. But there were also 31% of the hogs, sick when the serum was used, which recovered.

Inasmuch as the first time a person does a thing he cannot do as good a job as when he is skilled at the work, it is clear that hog men who are familiar with the serum will next time get it when they need it, without the loss they experienced this time through delay, and they will be able to use it quicker, better and with less loss of hogs.

As the use has spread in Imperial valley and in several other counties after it was seen how effective it was, so it quite surely will spread in other counties; the serum will be a standard article for use whenever its use is needed, and the single greatest enemy of pork production in California, the only disease which previously could not be overcome by good care, the trouble that previously threatened to wipe out all profits, will have been routed.

VETERINARY NOTES.

All sick animals should be immediately removed from contact with healthy ones, at least until the nature of the disease is known. They should be fed and watered from separate vessels.

The outside wall of a horse's hoof should never be touched with a rasp or file, as the covering (Periople) provided by nature is removed, thus permitting the penetration and absorption of filth that causes the hoof to become contracted and brittle, producing a predisposition to quartercracks.

Overfeeding and irregular feeding is the cause of more sickness among horses than any other known cause. The stomach of the horse is so exceedingly small compared to his size that he should be fed and watered at least three times per day, the capacity of the horse's stomach being 18 pints. The capacity of a cow's stomach is 52 gallons.

The old familiar saying: "If a horse has a broken leg, remove the shoe and examine the foot anyhow," should certainly be acted on to the extent that every lame horse should have the shoe removed and the foot thoroughly examined.

Manure should not be allowed to accumulate inside the stable, as the inhalation of noxious odors in many instances causes an irritation of the air passages and renders them liable to coughs and colds.

A mixture of equal parts of Tinct. Iodine, Turpentine and Sulphuric Ether, applied once daily for several days, will stop the growth of new splints.

The horse should be shod at least once every 40 days whether the shoes are worn or not, as the hoofs overgrow the shoes, this being the cause of inflammation of the feet and corns.

Some of the causes of Colic are overloading the stomach, dirty alimentary matters, retention and hardening of excrementitious matters, calculi and concretions, intestinal worms, prolonged fast, unusual movements (rolling on the back

when cast), retention of urine and bolting the whole grain from gluttony or hunger, etc.

DR. F. A. ORME.

San Francisco Veterinary College.

HOG-FEEDING CORRECTION.

Mistakes from a slip of the pen as well as from a slip of the tongue will occur now and then in every paper. In the issue of June 7 it was down in type that bean screenings for hog feeding cost about \$6 per ton. If the figure 2 had not been omitted before it, the cost when prepared for the hog would have been approximately correct, as anyone familiar with the product would quickly see. The Press is looked upon as an authority in its statements, but errors in transcribing or setting up can usually be quickly recognized.

Dr. C. C. Young has just returned from

Bokhra, central Asia, and has brought with him a herd of 19 full-blooded karakul sheep for breeding purposes. It is learned that he will put 10 of these animals on his ranch at Belen, Texas, and 9 on his ranch at Roswell, New Mexico. Karakul sheep produce a fine valuable fur instead of wool, even when crossed with certain grades of sheep, according to Dr. Young, who also says that the climate and grasses of this district of Mexico are suitable for the raising of karakuls.

Over 60 cars of cattle were received at Klamath Falls last week from California points, and some from Portland. Pasture is exceptionally good in that section this season.

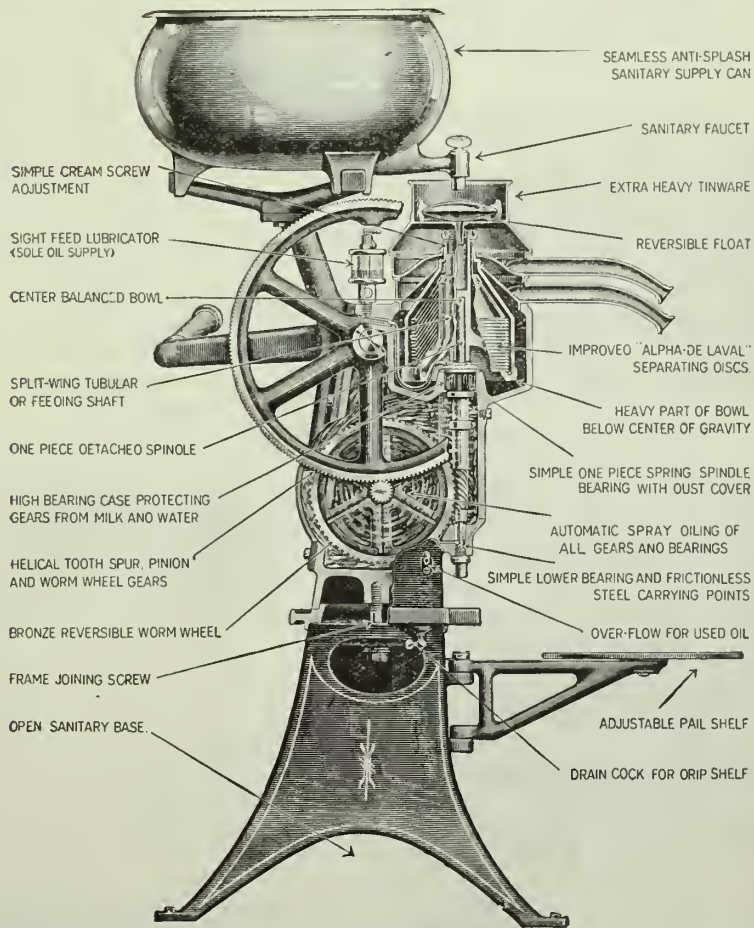
It is stated that 15,000 head of sheep are being moved from the San Joaquin valley to the Siskiyou ranges for summer pasture.

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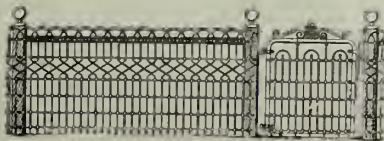
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Live Stock Notes.

[Written for the PACIFIC RURAL PRESS by
J. C. LOOMIS.]

While dairying has been an important factor in Santa Cruz county for a good many years, none of the dairy herds have been carried into the purebred standard until recent years.

The Holstein herd owned by Judge C. H. Lindley, of San Francisco, which is maintained on Linwood Farm, his foothill ranch, is one which has been built up rapidly in the past three years, with the result that it is the largest and perhaps the only purebred dairy herd along the coast since the McKenzie herd of Guernseys was moved away.

Located as it is in the hills adjoining Santa Cruz, the feeding problem is different than in our large valleys, there being but 60 acres out of 325 that is suitable for cultivation, the balance being used for pasture.

Rye, barley and corn are the principal crops grown on the small level patches, a great deal of which is put through the silo and fed in that way, and it might be well to state that the feeding value of the three crops is considered: first, corn ensilage; second, barley; and, last, rye. This is fed in connection with alfalfa hay and some alfalfa meal and molasses. Several acres will be seeded to alfalfa,

and it is hoped in this way to avoid buying so much feed.

When it was decided to run this ranch as a dairy, modern buildings were put up, under the management of D. C. Stanion, and a number of registered Holsteins were purchased. Among these were 17 head from the Pierce herd near Stockton and a few from Imperial valley. With this foundation the herd has increased to 52 head, most of which are cows and heifers. One of the outstanding features of this herd is the fact that they are high testers, the herd averaging more than 4% fat, and in line with this, a young bull was purchased, called Dutchland Hengerveld Sir Gladi 74364, a three-year-old next July.

This animal was sired by Dutchland Sir Pietertze Hengerveld 48696, who has four A. R. O. daughters. His dam was Detry Belle 59825, with an official test of 22 pounds of butter in seven days. The bull has four sisters with an average test of 26 pounds butter in seven days, with an average test of 4.

With this sire and a really high average test among the mature cows, a high test should be realized from the heifers bred on this ranch.

Some official testing is being done along with this herd, with the result that several fine records have been established.

As a certified dairy was to be run, the buildings were built exceptionally well, largely on account of the attention to be given the handling of the milk.

The milk house adjoins the cow barn and is covered on the outside with shingles. Inside the walls and ceilings are covered with tongue and groove lumber, which is painted enamel white.

A partition divides the building into two rooms, one for the milk cooler, bottler, separator and part of the sterilizing vat. The other room contains a boiler, bottle cleaner, washing tubs and the other half of the sterilizer. The milk is poured in from the outside and strained into a vat, then run over a water cooler. From there it is put into bottles and hermetically sealed.

This is the morning's milk, the afternoon milk being run through the separator and sold for butterfat.

As only the morning's milk is used for milk supply and as good cold spring water is piped from the mountains no icing is necessary, which greatly cuts the expense for certified milk.

This separator house is one that could profitably be used by any dairyman and could be more cheaply constructed by using rough lumber outside instead of shingles.

Owing to the fact that certified milk is sold, all cows are tuberculin tested every six months.

With the limited feed on the place the present size of the herd will be continued, a higher standard of stock being the main thing in view from now on.

A. W. Morris and Son's Holsteins are holding their own, the 3 year old heifer Tilly Alcartra having just completed her yearly test with 672.98 pounds of fat from 21,421.3 pounds of milk.

This is a world's record for junior 3 year olds in the Holstein-Friesian Association. This is a very remarkable record for a young cow, and the owners believe she will be a great long distance cow at maturity.

Among others in the herd which are doing well under the official test are Aralia De Kol 3rd who has made 297.89 pounds of fat in 163 days, last month having made 52.6 pounds of butter. De Kol of Valley Mead 2nd as a 3 year old has made 605.6 pounds of fat in 295 days.

LIVE OAK STOCK FARM

Six Miles N. W. from Petaluma, on the Petaluma and Sebastopol Road.

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Importer and Breeder of

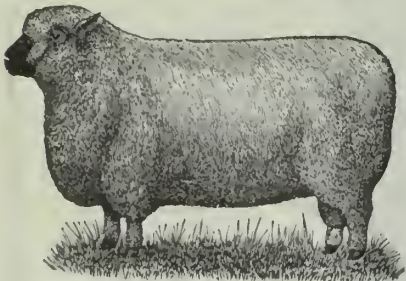
Red Polled Cattle

Color Deep Red. Both Sexes for Sale.
Address all communications PETALUMA SONOMA CO., CAL.

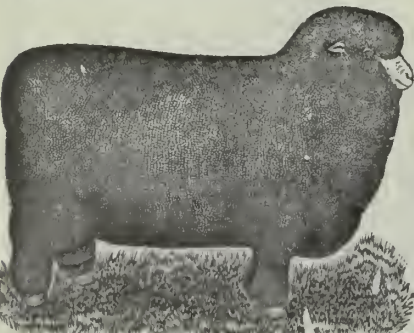


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They were all imported from England or bred direct from imported stock.



We have also bred American Merinos—Hornless Sheep—for 30 years. They are a large sheep with out wrinkles. Rams will produce 20 to 25 pounds of long, white wool yearly. Sheep of both sexes for sale.



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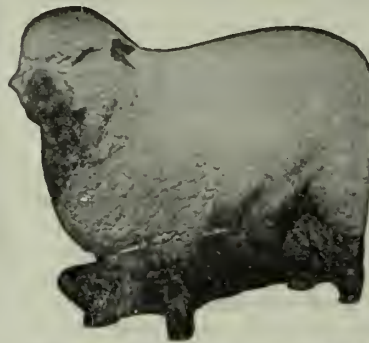
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Breeder of

Short-Horn Cattle, Shropshire and Merino Sheep



"Hillcrest Lad"—First Prize Ram at State Fair, 1911.

Offers for Season of 1913 an exceptionally fine lot of Pure-bred and Registered Shropshire and Merino Rams, yearlings and two-year-olds.

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C. W. BOWERS, Sacramento.

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We sell more imported horses than all other firms on the Coast because we are direct importers and give a four-year guarantee which is good right at home. We have on hand at all times the largest and best lot of heavy draft stallions and mares, both American bred and imported, to be found any place in the West. If you are in the market for a high-class stallion or mare, don't fail to give us a call, as we can sell you more genuine horse for the money than any other importer in the business.

Address:

RUBY & BOWERS, Davis, Cal.

We Have Imported More Horses Than Any Other Firm in the United States During the Last Year.

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SAN RAMON SHROPSHIRE FLOCK

Purebred and Registered Rams and Ewes
For Sale. Individual or Carload Lots.

PRIZES WON BY FLOCK IN 1912.

CALIFORNIA STATE FAIR, SACRAMENTO—Six firsts, four seconds, champion ram and ewe.

OREGON STATE FAIR, SALEM—Two firsts, five seconds, champion ram and ewe.

INTER-STATE FAIR, SPOKANE, WASHINGTON—five firsts, three seconds, champion ewe.

INTER-MOUNTAIN FAIR, BOISE, IDAHO—Eleven firsts and seconds, sweepstakes over all breeds, champion ram first and second, champion ewe first and second, and first for flock of one ram and five ewes of any age.

BISHOP BROS.,

San Ramon, Contra Costa County.

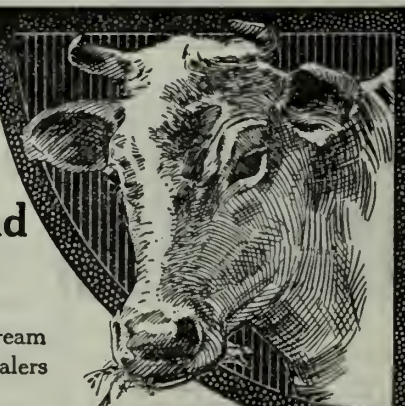
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if your separator is
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Standard Hand Separator Oil

Specially prepared for cream
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(CALIFORNIA)

SAN FRANCISCO



WATER PIPE

Hot asphaltum dipped, new threads and couplings; 2nd hand in name only. Prices far below your expectations. Screw casing and standard pipe fittings and valves.

THE EXCLUSIVE PIPE HOUSE.

PACIFIC PIPE CO.

Main and Howard Sts.

San Francisco

This heifer is out of De Kol Valley Mead, champion at Sacramento Fair in 1904.

The cow Sadie De Kol Acme, winner of the heifer fat contest at Sacramento last year as a four year old is expected to make better than 700 pounds of fat this year, having made to date 624.98 pounds fat in 303 days.

Ninety head of this herd are now in

THE BEST LINIMENT

OR PAIN KILLER FOR THE HUMAN BODY

Gombault's

Gaustic Balsam

IT HAS NO EQUAL

For —It is penetrating, soothing and healing, and for all Old Sores, Bruises, or Wounds, Felons, Corns and Bunions. HUMAN CAUSTIC BALSAM has no equal as a Liniment.

We would say to all who buy it that it does not contain a particle of poisonous substance and therefore no harm can result from its external use. Persistent, thorough use will cure many old or chronic ailments and it can be used on any case that requires an outward application with perfect safety.

A Perfectly Safe and Reliable Remedy for
Sore Throat
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Sore Lungs
Rheumatism
and
all Stiff Joints

REMOVES THE SORENESS—STRENGTHENS MUSCLES

Cornhill, Tex.—"One bottle Gaustic Balsam did my rheumatism more good than \$120.00 paid in doctor's bills." OTTO A. BEYER.
Price \$1.50 per bottle. Sold by druggists, or sent by us express prepaid. Write for Booklet R.
The LAWRENCE-WILLIAMS COMPANY, Cleveland, D.

SHROPSHIRE

Pure Bred and Registered

For 1912:

140 Head Yearling Rams
150 Head Ram Lambs

Enterprise Stock Farm

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PACIFIC SILO



a Concrete Silo with all modern improvements. As permanent as the ground upon which it stands. Especially constructed to meet the requirements of the Pacific Coast States. CONTINUOUS OPEN DOOR FRONT Perfect System of Ventilation and Drainage.

The most economical silo to build and to use. Write for "Catalog C" to DELTA CONSTRUCTION CO., P. O. Box 908, Sacramento, Cal.

Cutter's Anthrax and Blackleg Vaccines

are given the preference by 80 per cent of California stockmen because they give better results, than others do.

Write for Prices, Testimonials and our New Booklet on Anthrax and Blackleg.

THE CUTTER LABORATORY

P. O. Box 257, BERKELEY, CAL.

BERKSHIRES

Our herd is now one of the best in the State, being rich in Silvertip, Black Robinhood, Longfellow, Empress and Masterpiece Strains.

Prices reasonable, satisfaction sure. Correspondence solicited from interested parties.

OAK GROVE DAIRY FARM,
Woodland, Cal.

the Advanced Registry, 80 of these having average records of 20 pounds of butter in 7 days, this too with 75% of them under mature age.

Eight of the 2 year old heifers on test have finished the year with an average of 471 pounds of fat.

Thirteen cows of mature age finishing their yearly test, averaged 650 pounds of fat. With this showing California can surely boast of some class in the Holstein breed.

Thornton S. Glide the well known Shorthorn cattle and sheep breeder of Yolo county has started to fit his stock for the State Fair at Sacramento this fall. Ed Hale is in charge of the stock, and a strong string will be put up.

T. B. Gibson, breeder of Shorthorn cattle and Poland-China hogs, has recently brought a young Poland-China boar from the East which he will use for a herd boar from now on. As a youngster he is a good looking individual and should greatly benefit the herd.

The Bull Ring Leader No. 353597 purchased at the Royal, at Kansas City last year is coming along nicely and is expected to make a great sire. That he is a great show bull is shown by his long list of first prizes through the Middle West, among them being the 1912 Kansas City Royal.

This bull is by Ring Master, by March Knight who was champion of England. His dam was Gloster Queen 2nd. Mr. Gibson states that he will not be at Sacramento this year to exhibit as he could not obtain a suitable herdsman.

Running a purebred dairy, hog and poultry ranch on 15 acres of alfalfa is a novelty in California, but that is what A. H. Brinton of Woodland is doing. Berkshire hogs are being raised, the foundation having been purchased from the Murphy herd several years ago.

Jersey cattle are milked, the herd bull being a young bull called Gerties Woodland Son, sired by Gerties Son. This animal was purchased at Smith's last auction sale and is a good looking individual. As the ranch is small only a few cows can be kept, there being at present 12 head of registered Jerseys and 4 Berkshire brood sows.

Yolo county is to have a county Fair at Woodland during August of this year. A fair in such a prominent breeding center as Woodland should bring out a fine bunch of stock and prove a great success financially.

With the numerous county fairs and the State Fair to be held this fall breeders of good stock will be able to do a lot of good consistent advertising.

These fairs are a fine thing as it stimulates interest in better stock, a thing California farmers are needing at this time.

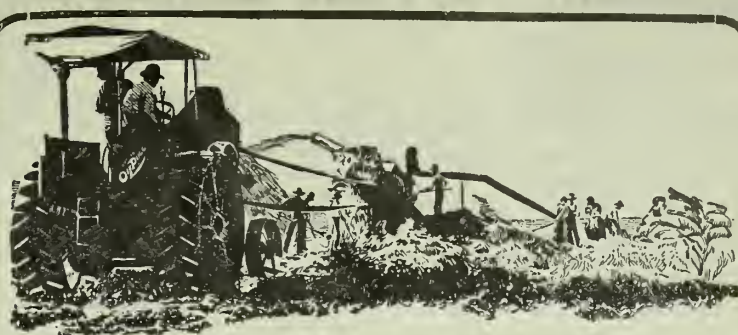
What is said to be the first lot of hogs ever sold by California breeders to the Government for shipment to the Philippines were some recently purchased by W. M. Birch, agricultural inspector for the Philippine Islands.

Formerly this class of stock was bought mostly in Australia, but Mr. Birch stated that no doubt California would hereafter be patronized.

As the Government has no stock shipping facilities in San Francisco they were shipped to Seattle and taken from there in one of the transports.

Situated as they are, California breeders should awaken to the fact that the island and Japanese trade is open to them, and then go after it.

If such a market is opened there will never be any fear as to future prospects from a breeders' standpoint.



A CAPACITY COMBINATION

A big job that has to be done quickly needs an outfit that you can depend on. Look into the

Rumely Line of Separators

32 in. to 40 in.

They are machines you can't choke—they beat the grain out of the head in the cylinders—they stack nothing but the straw.

The capacity, large grate surface and durability of these separators make them the logical machine for every big job.

To run these separators at lowest cost—use a



30 to 60 h. p.

—the tractor that uses kerosene—it will furnish the cheapest, steadiest and handiest power. It's easy to handle and useful every day in the year for any kind of belt or field work.

Send for Separator Catalog—Rumely-Advance or Gaar-Scott and Oil Pull Doto-Book, No. 353. Ask us the name of our nearest dealer.



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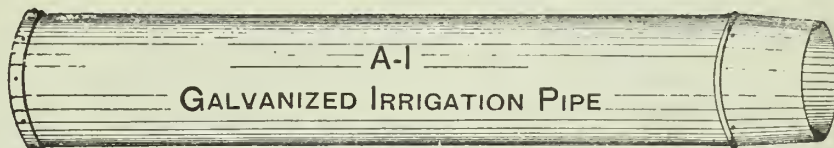
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A-I GALVANIZED IRRIGATION PIPE

WHY does our A-I Surface Irrigation Pipe stand the hard usage to which it is subjected better than any other pipe, riveted or otherwise?

BECAUSE it is made with a lockseam set down under 3500 pound pressure, which requires no soldering to make it water tight (solder will break loose by jarring and hard knocks).

A-I Pipe was awarded first prize at Fresno and Santa Clara County Fairs in 1912.

Send for new catalog with prices and valuable information.

AMES-IRVIN CO., 8th and Irwin St., San Francisco.

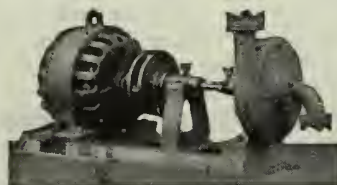


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LEAKLESS IRRIGATION PIPE

Made with long lock seam, powerfully grooved and made doubly strong by soldering full length. Can't break or leak. No rivet heads or rough seams to prevent easy handling. Slides smoothly without trouble. Send for Catalog B.

ROBINSON HARDWARE CO., Gilroy, Cal.



PIONEER CENTRIFUGAL PUMPS

Improved machinery and methods enable us to sell you this pump for less than you can buy any other make.

Our retail prices are less than our competitors' wholesale prices.

We guarantee our pumps the equal in quality and capacity of any. Live agents wanted. Write for circular and prices.

PEERLESS IRON WORKS, Sacramento, Cal.
Mention Rural Press.

SECOND HAND PIPE

Very best quality of selected second-hand water pipe and standard casing pipe. All newly cut threads and new couplings attached; asphaltum dipped. Fully guaranteed. At extremely low prices. BUY NOW while the opportunity prevails.

WEISSBAUM PIPE WORKS,
160 Eleventh St., San Francisco.

HOLSTEIN BULLS

3 past Yearlings from Tested Dams.

HEENAN & WELDON,
Sacramento, Cal.

Box 962.

Blake, Moffitt & Towne

Dealers in 37 FIRST STREET, SAN FRANCISCO
Paper Blake, Moffitt & Towne, Los Angeles
Blake, McFall & Co., Portland, Ore

Organization of Girls' Poultry Clubs.

[Written for the PACIFIC RURAL PRESS by
SUSAN SWAYSGOOD.]

This is the title of Circular 203, Bureau of Animal Industry. And it shows that the Government is alive to the fact that if we are to keep our girls and boys on the farm they must be trained to do some of the things men and women do, and also be interested in associating together for mutual benefit.

The old days of isolation, except in rare instances, are about over, at least in California. All through life I have noticed that few people are able to take an interest in any thing very far removed from things they were acquainted with in childhood. Hence, the wisdom of getting children interested in all lines of farm work and social helpfulness.

The title page of this circular shows a girl of perhaps eight or ten years, testing eggs; and in the introduction we are told that the loss, due to the improper handling of eggs throughout the country is enormous, extending into millions of dollars annually. It is an equally established fact that strictly fresh eggs command a higher price than those commonly designated as store eggs, and if the farmer, who is the largest producer of this well known perishable commodity would take more care in selecting, grading and marketing this product, he would receive a higher price for his eggs.

"The object of forming girls' poultry clubs is to give a better knowledge of the value and importance of the poultry industry and the marketing of a first class, uniform product, to teach better methods of caring for the poultry and eggs, and to show the increased revenue to be derived from well bred poultry where proper methods of management are pursued."

Now, for the benefits of the girls, I am going to quote the method of organizing, as advised by Harry M. Lamon, the writer of the Government circular, and afterwards those who wish can send to the U. S. Department of Agriculture for the circular, which will give the girls fuller information.

ORGANIZATION.—Throughout the year

POULTRY.

S. C. WHITE LEGHORNS—Heavy layers, California's greatest prize winning strain. Eggs, chicks, stock. Send for list. M. Dutterbernd, Petaluma.

BARRED PLYMOUTH ROCKS, White Minorcas, White Holland turkeys. Stock and eggs only. L. N. Cobbledick, Oakland.

BARRED ROCKS ONLY—We have some fine breeders for sale now. Write for prices. G. L. Hawley, Madera, Cal.

BROWN LEGHORN ROOSTERS, chix and eggs, same in Barred Rocks, White Minorcas. W. S. Rose, Yuba City, Cal.

ORINGTONS, BUFF AND WHITE—Summer sale of stock. Mrs. S. Swaysgood, Route 2, Pomona, Cal.

FOR SELECTED EGGS AND CHICKS from S. C. White Leghorns, see Hopland Stock Farm advertisement.

BABY CHICKS, from heavy layers. White Leghorns, Barred Rocks, R. I. Reds. Free folder. White Hatchery, Petaluma.

CROLEY'S PIONEER EGG MAKER—Makes poultry pay when egg prices are low.

CHICKENS, DUCKS, GEESE, GUINEAS, Pea fowl. Address Wm. A. French, 545 W. Park St., Stockton, Cal.

TRAPNESTED S. C. WHITE LEGHORNS. Eggs, chicks, stock. A. R. Schroeder, Box P, San Gregorio, Cal.

WHITE LEGHORNS—Chicks, eggs, cockerels. Fine stock. Reasonable. O. B. Morris, Lodi, Cal.

BRONZE Turkeys and Eggs. Ed Hart, Clement, Cal. Large size, good plumage, early maturity.

TWIN OAKS FARM—W. H. Bissell, Proprietor, Livermore, Cal.—Buff, White Orpington.

RINGNECK PHEASANTS—Eggs for hatching. T. D. Morris, Agua Caliente, Cal.

CROLEY'S HIGH GRADED HARD SHELL—The leader in poultry shell.

meetings should be held to discuss the different problems of poultry management, and at such meetings the Animal Husbandry Division of the Bureau of Animal Industry, U. S. Department of Agriculture, will have in attendance, whenever possible, one of its specialists on poultry to assist in solving such questions or problems as might arise and to give whatever help and information he can to the members on such subjects as selection of stock, candling demonstrations, etc. He will also assist in securing first class markets for the sale of poultry and eggs.

Each county club should hold an exhibition once a year, preferably in connection with the county fair, at which place a pair of the best chickens grown by each member should be placed on exhibition and entered to compete in the regular classes for premiums offered by the fair association, as well as for the special prizes offered for members of the girls' poultry clubs. An exhibit of the best dozen eggs should also be made.

"It will be well to have a president, one or more vice presidents, and a secretary. A simple constitution and by-laws should be adopted. It will be found profitable to divide the county organization into townships, schools or school districts, and have local meetings at schoolhouses or at different girls' homes occasionally. Each club should adopt the following general regulations.

1. Girls joining the club must be between 10 and 18 years of age on January of any given year. Special classes may be organized for older girls.

2. No girl shall be eligible to receive a prize unless she becomes a member of the club, and sets at least one setting of 15 eggs.

3. Each member of the club must agree to study the instructions of the United States Department of Agriculture.

4. Each girl must plan to do her own work and keep strict account of all expenses, such as feed, labor (for which 10 cents an hour should be charged), sale of stock, etc.

"PRIZES AND AWARDS.—The award of prizes on fowls and eggs shall be made according to the rules set forth in the "American Standard of Perfection" published by the American Poultry Association.

"It will be found best to distribute the prizes as widely as possible. Honor and recognition sometimes count for more than money. Badges, certificates, and diplomas given to the club members are often more appreciated than money and expensive premiums. When liberal amounts are offered it will be well to give them in every township or school district, and offer premiums to the club that will make the highest records with five or ten in a team, dividing this premium into several different awards, depending upon the rank."

Among the very valuable suggestions to members we may quote the following because, they apply equally to the young and old fry in poultry raising.

"To rid the poultry house of mites, spray the pen, roosts, and the dropping boards with kerosene or crude petroleum at least once a week from the time warm weather sets in in the spring until cold weather comes in the fall. Those having lime and sulphur compound could use it to advantage in spraying for lice and mites in the poultry house.

"Market all cockerels, except those intended for breeding purposes, as soon as they reach broiler size, for they will pay a larger profit at that time than if held till fall when the market becomes overcrowded.

"It is urged that members of the clubs

shall strictly adhere to the following rules in handling their poultry and eggs.

1. Keep the nests clean; provide one nest for every four hens.
2. Gather the eggs twice daily.

3. Keep the eggs in a cool dry room or cellar.

4. Market the eggs at least twice a week.

5. Sell, kill, or confine all male birds

For Egg Profits you should use

HIGH PROTEIN

Meat Meal Bone Meal
Blood Meal Oyster Shell
Mixed Meat and Bone
Ground Bone

Ask our dealer, or
write us, sending
his name.

PREMIER POULTRY FOODS "Good as the best
Cheaper than the rest."

Ask us
about the

**"C. E. F."
POULTRY FOUNT**

It saves expense and
prevents disease.



UNITED PHOSPHATE CO.

1023-4 Story Bldg. Los Angeles, Cal.

Hopland Stock Farm

Poultry Department, Hopland, Cal.

WHITE LEGHORNS

Selected and mated to imported stock cockerels.

BABY CHICKS at \$10 per hundred.

EGGS \$6 per hundred in lots of less than 1000 eggs. Orders in excess of this, 10c per dozen above highest market price one week before shipment. 75% fertility guaranteed.

We are closing out the remainder of our 2-year-old hens at \$9 per dozen.

1000 September hatched pullets, in full laying, at \$12 per dozen.

8000 hens yarded—sanitary conditions perfect.

WELL RAISED—WELL CULLED—EGGS WILL PRODUCE LAYERS.

Pullets in full laying from \$12 to \$15 per dozen.

UTILITY STOCK

NO CULLS

Low Rates East

via

Southern Pacific

Round Trip

Limited Trains,
Also Fast Express
Trains With Tourist
Sleeping Cars.

Excellent
Dining Car Service
on All Trains.

Stopovers
Both Going
and Returning.

SALE DATES

June 1, 2, 3, 4, 5, 6, 10, 11, 13,
14, 15, 17, 18, 21, 22, 23, 25,
26, 27, 28.

July 1, 2, 3, 4, 5, 8, 9, 10, 11,
15, 16, 17, 22, 23, 24, 30, 31.

August 1, 2, 7, 8, 9, 10, 13, 14,
20, 21, 22, 26, 27, 28.

Sept. 2, 3, 4, 5, 8, 9, 10, 11.

In addition to the above, tickets will be sold to Baltimore July 28 and 29. Final return limit three months from date of sale, but not later than October 31, 1913.

Southern Pacific

SAN FRANCISCO: Flood Bldg. Palace Hotel Ferry Station Tel. Kearny 3160
Third and Townsend Streets Station Phone Kearny 180

Oakland: Thirteenth Street and Broadway Phone Oakland 162
Sixteenth St. Station Tel. Lakeside 1420 First St. Station Tel. Oakland 7960

Baltimore	\$107.50
Boston	110.50
Chicago	72.50
Cincinnati	84.50
July 22, 23, and 24 only.	
Colorado Springs	55.00
Dallas	62.50
Denver	55.00
Duluth	83.30
Gettysburg	103.80
June 25, 26, and 27 only.	
Houston	62.50
Kansas City	60.00
Memphis	70.00
Minneapolis	75.70
Montreal	108.50
New Orleans	70.00
New York	108.50
Philadelphia	108.50
Quebec	116.50
Rochester	96.40
July 1, 2, and 3 only.	
St. Louis	70.00
St. Paul	75.70
Toronto	95.70
Washington	107.50

and other points.

as soon as the hatching season is over."
The circular further states that the

FOR BEST RESULTS USE



Western Feed Company
North Point and Taylor Streets
San Francisco
SOLD BY ALL LEADING DEALERS



Free Book

giving a full account of hatching, raising, and caring for chickens, with details of a Complete System of Feeding.

Will be sent to you on application

COULSON CO.
Box E. Petaluma, Cal.

PERMANENT STRAIN BARRED and BUFF PLYMOUTH ROCKS.

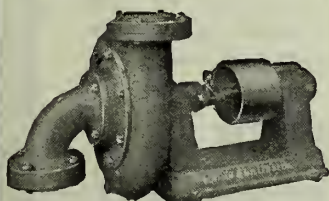
A few choice cockerels and pullets left. Eggs for hatching after January 1st.

JAS. M. MONTGOMERY,
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PUMPS

ENGINES



No pump was ever built that is better than this Miller Automatically Water Balanced, Enclosed Runner, Ring Oiling line of Centrifugal Pumps. No pump on the present market is as good. Our catalog will convince you. Write for it. You might as well get something that will last and cost you less to operate, than something cheap when the good costs no more than inferior. We are pleasing others. Why Not you?
Norman B. Miller Co. San Francisco, Cal.
503 MARKET STREET

Stump Pullers

CALIFORNIA STUMP PULLER CO., 704 Bryant St., San Francisco.



REDWOOD TANKS

I sell to the consumer. Box shooks and Boxes, Trays, Lumber, Millwork, Doors, Windows, Moulding, Wagon tanks, Spraying tanks. Independent.

R. F. WILSON, Stockton, California.

work of organizing girls' poultry clubs is to be conducted by the Bureau of Animal Industry in co-operation with the Farmers' Co-operative Demonstration Work of the Bureau of Plant Industry.

Considerable red tape, you will notice and whether we Californians have even a loose end of it, is more than I know. However, anybody interested can find out. I have given you the salient points of what is being done somewhere in the country for our girls, and I am mighty glad for the girls' sake. Surely this old world is progressing, when governments begin to recognize the girls as factors in the progress. It seems only yesterday that everything was accredited to the male side of the family and girls were simply nil.

And farmers should encourage the girls in this work because, while ostensibly the objects of these clubs are for raising more and better poultry and eggs they will train the girls in business methods, in self control, in parliamentary usages, and in many other things that the average girl lacks in her home training.

I have seen women shake in their shoes like an aspen leaf, when they have gotten up to speak in a lodge, after wrestling with themselves to reach that point where they should stand on their feet to speak. The reason for this timidity is always attributed to the wrong thing, some say they are nervous, others that it is because women were not intended to do such things, etc. I always say "rats", women are no particular specie, and when they have the "nerve", which means training, they can, and should do whatever comes before them to do, and do it the best they know how. What's more if they don't know how, let them use their brains and learn how. The days of the clinging vines are over, what the world needs now is wide awake men and women that forget which sex is called the "weaker" to join hands in helping push the wheels of progress.

Fear is only ignorance in chains, and women are only afraid because for centuries they have been kept back from developing the attributes of courage. Speaking in public requires practice and the girls poultry clubs and all organizations where girls and women can speak, will give them confidence and ability to meet any such emergency. Practice makes perfect, and it is practice that the stay at home girl and woman lacks. Practice with the poultry, and then don't be afraid to take tongue practice and tell others about what you are doing. One is just as necessary as the other, for if you keep all you learn to yourself the world will be little the better for your journey through it.

Keeping what we know to ourselves is pure selfishness, it does not make either the one who happens to know it any wiser, nor those they come in contact with.

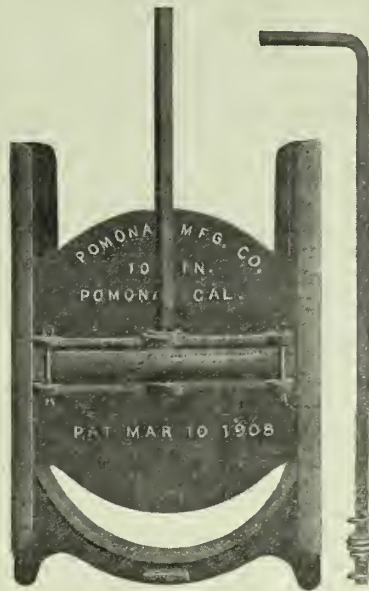
Everything we have is intended for common welfare, and some time man will attain that stature where he recognizes this truth, then will be the heaven on earth that we ought to have.

This is perhaps outside of chicken talk, but land o' living, if one can't have a little rope outside the chicken pens, I don't want to write to you people. All work and no play, you know, "makes Jack a dull boy," and it is the same with chicken talk, one needs a little change sometimes. And these talks, rambling though they be, may be like "sermons in stones and running brooks."



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The Home Circle.

What Happened to Flossie Turner.

Flossie's father and mother were becoming very anxious about her. She was in the best of health, brought home good reports from school, and always seemed happy. Yet they had many a long and serious talk concerning her, for their little daughter had one great fault: she was not perfectly truthful.

Now, Flossie never meant to tell an untruth. Indeed, she would have blushed at the thought of uttering a deliberate falsehood; yet the habit of exaggeration was so strong with her that, whenever she began to tell anything, her father said it puzzled him to tell "which was fact and which was Flossie."

This afternoon she came home from school with two of her companions, and they were talking over their plans for the coming summer.

"Well," said Flossie at last, "we don't know that we shall go anywhere; but it is very probable. My aunt and uncle from Maine will be here in July on their way to California; and we will perhaps decide to go with them."

"Oh, how delightful!" exclaimed Katie Brown. "I've always wanted to go to California. Do you really think, Flossie, that you will go?"

"Why, it's not fully decided," Flossie replied, smoothing out a fold in her little silk apron; "but I overheard papa and mamma talking about it this noon. If we go, we shall probably stay a year, at least; for the winter is really the most delightful time, you know. And I could go on with my studies out there, for we would be in some large city for the winter."

"O Flossie Turner!" exclaimed Clara Trimble, "you are certainly the most fortunate girl! Here we plan to go for a few weeks to some farm not forty miles from home, while you are to have such a lovely trip and see such delightful things."

Then the clatter drifted down the long hall and finally ceased, as the girls departed; and Flossie returned to the sitting-room just as her father and mother entered it from the side veranda.

Dr. Turner drew his little daughter to him, and said soberly:

"Flossie dear, come to the window a moment; I want to examine your mouth. Your mother and I have just been speaking of it; and I fear it is possibly a serious matter, and may require a surgical operation."

Somewhat frightened, Flossie stood and waited while the doctor drew aside the shades, and then, parting the pretty red lips, carefully examined the little mouth inside and out. Turning to his wife, he said:

"No, Elizabeth; I don't find any abnormal conditions here. Everything seems perfectly healthy and sound."

Flossie ventured to smile a little at that and asked a trifle anxiously:

"Why, papa, what made you think that anything was the matter with my mouth?"

"Well, daughter," he replied gently, sitting down and drawing her lovingly to his side, "your mamma and I were sitting on the veranda just outside the window, and heard all about that wonderful trip we are to take this summer. Won't you tell me, dear, just what you heard us say about it?"

Looking down, with flushing cheeks, Flossie said slowly:

"Why, when mamma read Aunt Flora's letter—she said—she wished it was possible—for us to go with them—and you—you said, if we went—you should want to stay at least a year, and—and—and—that

—that—that—it was not to be thought of!"

"Truly, daughter; and I wondered what sort of a mouth my little girl has when such a simple thing grew to be so big a story in the telling. If the mouth should grow as big as the story, dear, what a sad thing it would be!"

Flossie soberly returned her father's kiss, and went thoughtfully into the library, where, taking her ancient history, she settled herself in a big easy-chair by the window to study. But, for some reason, Peter the Great failed to interest her; and, laying her head back comfortably, she thought how frightened she was when her father had said there was something the matter with her mouth, and of what he had said to her afterward. Suddenly she heard the school-bell ring; and, hastily gathering together her books, she ran lightly down the steps, and started for school.

A little knot of boys and girls were discussing the lessons for the day as she entered the room, and Frank Clarke said:

"Flossie Turner, did you work that fifth problem in algebra?"

"Yes."

"Did you learn that history lesson?"

"Yes."

"That long list of kings?"

"Yes," laughingly answered Flossie.

"Well," he exclaimed: "I'd just like to ask how late you studied!"

"Oh," Flossie replied, with a little sigh, "it was 'most midnight when I finished!"

The minute she uttered the words she felt the strangest sensation in her face, as though her mouth had widened out almost from ear to ear. Hastily putting up her handkerchief, and hoping no one noticed it, she said in a strange voice, "No, it wasn't later than eleven o'clock." She felt the corners of her mouth come back into place a little, and waited; but no, she would never dare to take down her handkerchief yet. And, summoning all her courage, with a great effort, she added, to the amazement of everybody:

"Indeed, Fred, I believe it was only half-past nine"; and then, feeling the little mouth was quite natural again, she took away the protecting handkerchief, and added, "I was thinking it was later." Unfortunate words! Again the rosy mouth grew larger; and the scholars looked at her curiously, as she added: "I mean it seemed later than that." To her great relief the bell tapped, and they passed to their classes. When Flossie proved to be the only one who could solve the fifth problem, her teacher, after commending her clear and logical solution, asked:

"Did you receive any assistance in the work?"

Flossie looked up brightly and laughingly replied:

"There was no one there to help me but my father."

Alas! Not too much, but too little, had been said this time; and she suddenly felt her mouth growing smaller and smaller, until she thought she must look like one of the fishes one sees in the market, with her little round mouth. Hastily raising the friendly handkerchief, she said, as bravely as possible:

"My father saw I was bothered—and—and—asked me one or two questions which—made me see."

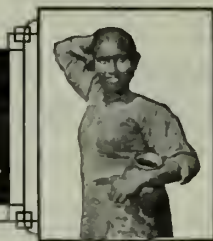
"Ah, yes!" continued the teacher: "it was not, then, worked entirely without assistance?"

"No, sir," said Flossie, more relieved at having told the truth than she had ever been in her life before.

Oh, what a trying day it was! Almost everything she said had to be altered before she was through with it, for each had either more or less than the exact truth. After supper she drew a long sigh of relief, and sat down on the veranda

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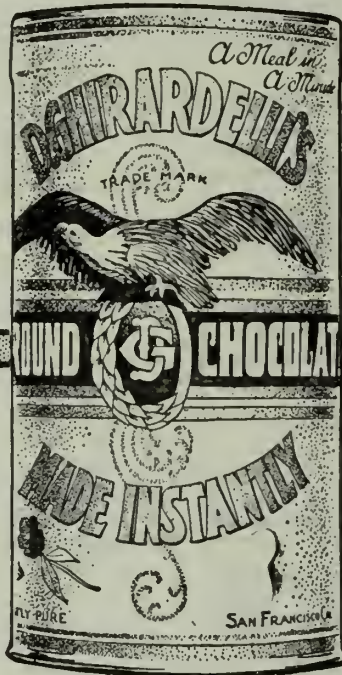
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steps to rest and think it all over, so thankful there was nothing further to dread that day.

But a group of merry boys and girls gathered one by one upon the steps; and Flossie forgot, in the midst of the jokes and merriment, the many mortifications and trials of the day.

Suddenly Clara Trimble said:

"O Flossie, Elliot was telling us at supper about your adventure with that snake; and he thinks you're a trump!"

"What was that, Flossie?" exclaimed the young people in one breath. "There are no snakes in our woods, are there?"

"Well, I don't know," laughed Flossie, "whether there are any now or not; but there was one."

"You were walking with your father, weren't you, when you saw it?" asked Clara.

"Yes," said Flossie, with a sudden recollection of how little truth there had really been in the story she told Elliot yesterday, and nervously hoping nothing more would be said about it.

"Oh, what was it? Do tell us! I am so afraid of snakes!" exclaimed Fannie Clarke, glancing apprehensively about her and gathering her dress about her feet.

"It's not worth telling, I am sure. Let's talk of something else," begged Flossie, thankful for the gathering dusk that hid her flushing face. How could she confess that it was only a harmless little garter-snake that had slipped quickly away through the grass! But Clara, proud of her friend's courage, launched upon a recital of how big the snake was and how brave Flossie had been, never screaming, although it had coiled itself right up in front of her. "Didn't it, Flossie?" A moment Flossie hesitated. The darkness would protect her. She could not deny while everybody was full of admiration of her courage, and she gave a timid "Yes." Ah! how quickly she felt the results, as her mouth grew larger and larger, until she was sure it must reach her ears!

"Oh you brave girl! You are a regular Joan of Arc," exclaimed Fannie, raptuously. "Then did your father kill it?"

"Yes," assented poor Flossie; and with the word the corners of her mouth went 'way behind her ears. What could she do? She could not take it all back now! Oh, if they would only talk of something else!

"What kind of a snake was it, Flossie?" persisted Clara—"not a rattlesnake, was it?"

"No," answered Flossie; but he voice sounded so strange she had not courage to add another word.

"Elliot said your father thought it was a—I forget, Flossie. What was it?"

"A moccasin," said Flossie, faintly; and with that what a dreadful thing happened! The corners of her mouth had come together at the back. She felt the top of her head waver; and then over it went with a dreadful crash, down the steps and onto the stone walk below! She sprang up with a little scream, only to see her father's laughing face, as he said:

"Well, little girl, and so the history fell down with a bang, and spoiled your nap."

But, with both hands in her fluffy bangs, Flossie looked at him wildly.

"O papa, my head! Where is it?"

"Why, daughter, it seems to be about where it ought to be, unless, indeed, you should come and lay it on your father's shoulder."

Then, nestled in his comforting embrace, she told him all her dreadful dream, which, after all, turned out to be a blessed dream; for, whenever in future Flossie began to tell more or less than the exact truth, the remembrance of that nap came with a queer feeling about the

corners of the rosy mouth. And with brave honesty she stated the exact facts, until it became at last as much a habit to be perfectly honest as it once had been to exaggerate.—Mary A. Miller, in Presbyterian Banner.

Facts About Tea for Housewives.

Have you ever realized that tea is an article used in every household and very few of the housewives know what they are drinking?

Tea, here, today is a pure article, because before it can pass the customs into the United States, it must pass a rigid inspection by tea experts appointed by the government. So far, so good; but the fault is that the government standards are too low and many teas are admitted that are trashy, and in a short time after being carried into the warehouse, they are insipid and worthless as a refreshing beverage.

Next, the teas pass through so many hands, all of whom make some profit and by the time they reach the retail store, they are from six months to two years old, and as teas deteriorate very quickly, by that time they are naturally stale, poor and insipid. How long the retail store carries them before they are sold to the housewife is a big problem.

Next, they are generally sold to the retail stores in bulk, 40 to 80 pounds to the chest. This chest is opened, and in nine stores out of ten the teas are sold out of the chest, which is invariably left standing open, and as it will absorb the moisture in the atmosphere, and all the smells in the store, can you wonder that it is almost unfit to drink? Even when the dealer dumps the tea into his counterbin, it being not air-tight, it does not prevent tea from spoiling.

Next, a good many teas are packed in paper cartons, a very poor container, even when wax-lined, for the air penetrates in a little while and spoils it. Some are packed in a lead package, which is a little better than paper. Others are packed in ordinary tins; but the covers permit the air to penetrate, so they are little better than paper.

You have often opened a tin of tea put up in the ordinary tin and undoubtedly have found the tea spoiled, as it has absorbed the smell of the wood the case is made of.

Next, it is one of the articles on which the retail store makes a large profit, and the housewife helps to pay his expenses through her tea cup, and does not even get a decent beverage.

Summing this all up, the consequences are that the housewives buy a very stale article—which if originally a low grade or even a good tea, all the essential properties have disappeared and they are paying a very heavy tax for a spoiled article.

Good tea, packed in absolutely air-tight tins, can now be easily obtained by parcels post, under almost U. S. Government supervision. Such teas are not cheap intrinsically; but to the economical housewife they are the cheapest, for one pound of good fresh tea will make over three hundred cups of delicious tea, for it always keeps fresh and if the housewife always carefully closes the lid tightly the last cup made will be as delicious as the first cup. Why not buy good fresh teas?

Not long ago an old man was called into the witness-box at an Irish Court, and, being old and just a little blind, he went too far, in more than one sense, and, instead of going up the stairs that led to the box, mounted those that led to the bench. Said the Judge, good-humoredly, "Is it a Judge you want to be, my good man?" "Ah, sure, your honor,"

was the reply; "I'm an old man now, an' mebbe it's all I'm fit for." The Judge had no reply ready.

Mr. Balfour could enjoy a story against himself. Sir Henry Lucy tells this one: During his stay in Dublin he met a Catholic priest who did not belong to the National party, and asked if in his opinion the Irish people were as bitter against him as they were represented to be. "Since you have asked me, I will tell you the truth," said the priest. "If our flocks hated sin half as cordially as they hate you, there would be no use for priests in Ireland."

To wash water bottles and vinegar cruets that are discolored, put borax and ammonia in warm water, fill the bottles with the mixture, and allow them to stand a day or so. Shake them vigorously and stand them upside down to dry. A little ammonia in the rinsing water will help to clear them.

"It takes my wife three days to go to a picnic."

"How is that?"

"She takes a day to get ready, a day to go, and a day to get over it."—Sacred Heart Review.

Rosamond, who has made considerable advance in her arithmetic lessons recently, caught sight of one of the pointed-to-a-foot figures much used in fashion advertisements. "Oh, papa," she said, "that lady looks like an improper fraction!"

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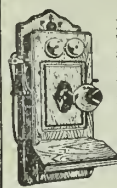
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The Dairy Farm, Gurler	1.10
Greenhouse Management, Taft	1.50
Mushroom Culture, Falconer	1.00
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THE MARKETS.

San Francisco, June 11, 1913.

(Unless otherwise noted, quotations represent prices paid to the growers.)

Cereals.

WHEAT.

The local market is not affected by Eastern fluctuations, but a slight upward movement in the North, due to gradually diminishing supplies, has brought a corresponding advance here. Buyers are operating on a small scale, however, and the market is not especially firm at the new figures.

California Club, etl.....	\$1.70	@1.72½
Forty-fold	1.72½	@1.75
Northern Club	1.70	@1.72½
Northern Bluestem	1.77½	@1.82½
Northern Red	1.65	@1.82½

BARLEY.

Trading is quiet, neither buyers nor sellers showing any great anxiety for business. Offerings of new grain are increasing, however, and while choice feed is fairly steady, ordinary lots are quoted a little lower. Much of the new stock so far has been of rather poor quality.

Brewing and Shipping...	Nominal
Choice Feed, per ctl.....	\$1.45 @1.50
Common Feed	1.35 @1.45

OATS.

White oats are firm as last quoted, with a fair demand. There is little trading in red feed, and while some Texas red seed is offered at \$1.85, there is no business worth mentioning at this figure.

Red Feed	\$1.65 @1.85
Seed	Nominal
Gray	Nominal
White	1.70 @1.75

CORN.

Prices on all lines stand about as before, and there is some movement of both local and Eastern grades, but neither demand nor supply are very large.

Cal. Yellow	\$1.60 @1.65
Eastern Yellow	1.55 @1.60
Eastern White	Nominal
Kaffir	1.50 @1.55
Egyptian	1.70 @1.75

RYE.

Somewhat lower prices are quoted on Northern stock, which is about all that is offered here now, but there is not enough business to establish values.

Rye, per ctl.....	\$1.35 @1.45
-------------------	--------------

BEANS.

Pink beans are still in rather large supply, and red kidneys also are easy, with no very strong demand. Local prices for limas have shown little change for some time, though reports from the growing district indicate that comparatively little of last year's crop remains, and an advance is reported in some quarters. A fair crop of limas is expected this year, and an increase of acreage is reported in some sections. Other descriptions are moving off in better shape than for some time past, and most lines are a little firmer as to values, whites being the strongest on the list, with little stock remaining. Practically all country offerings have been cleaned up, and the new crop is being planted in the river districts.

Bayos, per ctl.....	\$3.15 @3.25
Blackeyes	3.15 @3.35
Cranberry Beans	4.70 @5.00
Horse Beans	1.90 @2.15
Small Whites	5.40 @5.50
Large Whites	4.75 @4.90
Limas	5.35 @5.45
Pea	Nominal
Pink	3.40 @3.50
Red Kidneys	3.90 @4.00
Mexican Red	4.00 @4.20

SEEDS.

All lines of seeds are quiet, and buyers show little interest. Alfalfa is not moving sufficiently to establish values very definitely, though it is nominally valued at 12½ to 14c.

Alfalfa	12½ @ 14c
Broomcorn seed, per ton....	\$27.00 @28.00
Brown Mustard, per lb.....	3½c
Canary	6 @ 6½c
Hemp	3 c
Mill	2½ @ 2¾c
Timothy	Nominal
Yellow Mustard	Nominal

FLOUR.

The movement of flour in this market remains about steady, and prices have shown no change for some time.

Hay and Feedstuffs.

HAY.

Prices show no further change, and dealers' reports indicate a little stronger feeling. Local arrivals are about as before, consisting largely of first-cutting alfalfa, which still moves off rapidly for the dairy trade. There is apparently a movement now among consumers to put in a stock of alfalfa for the season, though in some quarters doubt is expressed as to the stability of prices, owing to the large movement of cattle out of the State and the fact that everything available has been utilized. Considerable grain acreage has also been cut for hay, which may affect the market later on. Only a little new grain hay has arrived here so far, and as much of it is of good quality, it sells off readily at good prices. Country prices are generally higher than before, everything being firmly held in both nearly and Sacramento districts. Dealers predict a dull market here, but look for a comparatively strong demand in most parts of the country.

No. 1 Wheat, or Wheat and Oat	\$18.50 @20.00
do No. 2	15.50 @18.00
Lower grades	15.00 @15.50
Tame Oats	15.50 @20.00
Wild Oats	14.00 @17.00
Alfalfa	12.50 @13.50
Stock Hay	9.00 @11.00
Straw, per bale.....	35 @ 80c

FEEDSTUFFS.

All kinds of feed are in active demand, and values on most lines are firmly held. Middlings are scarce, and have been sharply advanced.

Alfalfa Meal, per ton.....	\$22.00 @24.00
Bran, per ton	29.00 @30.00
Oilcake Meal	35.50 @36.50
Cocanut Cake or Meal.....	Nominal
Cracked Corn	34.00 @35.00
Middlings	34.00 @36.00
Rolled Barley	30.50 @31.50
Rolled Oats	35.00 @36.00
Shorts	27.00 @28.00

Garden Truck.

VEGETABLES.

Supplies of summer vegetables are increasing right along, and prices show a general downward tendency. Green corn is now coming in from several districts, the first from Alameda appearing this week and selling now around \$4 per sack. Tomatoes from the Merced district are also offered in fair quantities, and stock that is at all well ripened sells readily. Cucumbers and green peppers have dropped sharply, and ordinary string beans are lower, though some fancy stock sells at 10c or over. Summer squash also is plentiful and easy, while rhubarb is fairly steady. Asparagus is in ample supply, but arrivals clean up fairly well, and ordinary stock sells a little better than last week, though only fancy lots will bring over \$1 per box. Old yellow onions are no longer much of a feature in the market, and new reds are moving off in better shape, with a slight advance in prices.

Onions: New Red, sack.....	70 @ 75c
Garlic, per lb.....	4 @ 5c
Cucumbers, per box.....	50c @1.00
Cabbage, per ctl.....	1.00
Carrots, per sack.....	75c
Cauliflower, per doz.....	40 @ 50c
Rhubarb, box	85c @ 1.25
Green Peppers, lb.....	10 @ 15c
Green Peas, lb.....	3 @ 4c
Asparagus, box	50c @ 1.50
String Beans, lb.....	3 @ 6c
Summer Squash, box.....	50 @ 75c
Okra, box	25 @ 40c
Green Corn, doz.....	15 @ 40c
Tomatoes, box	1.50 @ 1.75

POTATOES.

Old stock is still fairly plentiful, and moves slowly as last quoted. New potatoes also are cheaper, river stock being more plentiful and weak, though garnets and early rose are firmly held as quoted.

Old Whites, etl.....	50 @ 75c
New River Whites	\$1.25 @ 2.00
Early Rose	1.25 @ 1.75
Garnet	1.90 @ 2.00

Dairy Produce.

POULTRY.

Eastern stock is still arriving freely, while shipments from nearby points are

very heavy, causing a general feeling of easiness, with some decline in prices. Good fryers are fairly firm, with a slight advance, but broilers are lower. Large hens also have dropped sharply, as they constitute a large part of the arrivals from both Eastern and local points. The supply of squabs is excessive, causing a drop in prices.

Large Broilers, per lb.....	21 @22 c
Small Broilers, per lb.....	21 @22 c
Fryers, per lb.....	23 @25 c
Hens, extra, per lb.....	15 @16 c
Hens, large, per lb.....	15 @16 c
Small Hens, per lb.....	14 @15 c
Old Roosters, per lb.....	10 @12 c
Young Roosters, per lb.....	22 @25 c
Squabs, per doz.....	\$1.50 @ 2.00
Geese, per pair.....	1.50 @ 2.00
Ducks, doz	4.00 @ 6.00
Turkeys, live	21 @22 c

BUTTER.

Butter has shown no change whatever for the last week, and with an active movement both for local and outside use, as well as for storage, continued firmness is expected. Some small lots of strictly fancy stock have been selling at a slight premium over the general quotations.

Thurs. Fri. Sat. Mon. Tu. Wed.						
Extras	27½	27½	27½	27½	27½	27½
Firsts	27	27	27	27	27	27

EGGS.

After standing at 24½c for several days, extra eggs have dropped back to 23c, being only steady at present figures. The drop is attributed to a cessation of buying in this part of the State by the Southern dealers, as well as a curtailment of storing on account of last week's advance.

Thurs. Fri. Sat. Mon. Tu. Wed.						
Extras	24½	24½	24½	23½	23	23
Firsts	22	22	22	22	22	22
Selected						
Pullets.....	22	22	22½	21½	21½	21½

CHEESE.

Flats remain firm as last quoted, while Y. A.'s have dropped the ½c gained last week. Monterey cheese is moving off well, and brings a little advance.

Fancy California Flats, per lb.....	14½c
New Young Americas, fancy.....	17 c
Monterey or Jack Cheese.....	15 @15½c

Deciduous Fruit.

Supplies of strawberries have been running light for several days, causing a sharp advance in prices, which has in turn curtailed the demand. Supplies of other berries have increased considerably, with a corresponding easing off of prices, though most lines are readily cleaned up. Gooseberries, however, move rather slowly, and currants have been in oversupply. Cherries are lower than last week, but higher than a few days ago, as the rush of fruit from nearby points has subsided, and there is not much defective stock coming in. Apricots have become rather plentiful, and prices have been sharply reduced, while peaches are fairly steady, attractive fruit finding ready sale. Plums are moving off well at the lower prices, and figs are in lighter supply than at the first of the week. A good many cantaloupes are now appearing, and find a very fair demand. Old apples are pretty well cleaned up, but find only moderate demand, while choice new apples in standard boxes find a ready market at \$1.50, with occasional lots bringing more.

Shipments of deciduous fruit from California are much larger than this time last year, when the average for the first week in June was about four cars per day. This season the shipments have been considerably over ten cars per day. Naturally, cherries lead, but apricots, peaches and plums are going out in increasing amounts. Total shipments from California to June 10th were 287 cars, as against 85 cars to the same date last year.

Loganberries, chest	\$5.00 @ 7.00
Blackberries, chest	10.00 @13.00
Gooseberries, drawer	40 @ 60c
Raspberries, chest	14.00 @20.00
Currants, chest	8.00 @ 9.00
Strawberries:	
Longworth, chest	6.00 @10.00
Other varieties, chest.....	4.00 @ 6.00
Apples: New, box	1.00 @ 1.50
Newtown Pippins	1.50 @ 2.00
Cherries:	
White, box	25 @ 30c
Black, box	35 @ 40c
Royal Ann	50 @ 60c
Apricots, crate	75c @ 1.00
do lug box	1.00 @ 1.25
Peaches, box	75c @ 1.25
Plums, crate	75c @ 1.25

Figs, box	1.25 @ 2.00
Cantaloupes, large, crate....	3.00 @ 5.00

Dried Fruits.

Evaporated apples, which were hard to sell a month or two ago, now show considerable firmness, and have again been marked up ¼c. The outside demand has picked up in good shape, and there is comparatively little left in the State, supplies in first hands being almost entirely cleaned up. Packers report a rather easier feeling in spot prunes, which have been rather firm for the last few weeks, and 3c is quoted as about the best local packers will offer for the stock remaining in the country. In view of the firmness of new crop prunes, however, a good many holders expect to get better prices, and there are some reports of higher figures being paid in the country. Packers are out with the offers quoted for new crop white figs, though values have not been established for black figs. Peaches are finding a little more Eastern demand, and both spot and future goods are firm, with a strong demand for the green fruit from canners and shippers. Apricots continue firm, but rather quiet. There is no very large movement of raisins, but values are very steadily maintained. The New York Journal of Commerce says: "The demand for dried fruits on the spot is increasing, and is now fairly active, though purchases as a rule are made with close reference to actual requirements. With stocks of the chief varieties getting into small compass here and offerings from the Coast for immediate or early shipment small, the market is strong, with an upward tendency. It is reported that sales of some 3,000 boxes of peaches have been made within the past day or two at full prices, though the transactions covering this business were individually small. The Coast market for spot peaches is reported to be advancing because of the unfavorable outlook for the coming crop and the rather higher prices offered by canners, whose wants, if covered, would leave comparatively little for drying. On the spot here the trend of prices is upward, and little is now to be had at the inside quotations. Apricots for shipment out of the new crop are decidedly strong. The export demand has been active and continues in spite of the higher prices. California prunes are strong and tending up both here and on the Coast. Some packers have withdrawn offerings of old crop for prompt or forward shipment. On 1913 crop for October shipment about the lowest prices quoted are 6½c four-size basis for 30s, 5½c for 40s and 4½c for 60s, f. o. b. Coast. Raisins remain quiet, but the market has a firm undertone."

Evap. Apples, per lb.....	4½ @ 5½c
Apricots, new crop.....	12 c
Figs: White, new crop.....	2½ @ 3 c
Black	Nominal
Calimyrna, new crop	3½c
Prunes: 4-size basis, spot...	3 c
do 1913 crop	3½ @ 4 c
Peaches	3½ @ 4½c
Pears	4 @ 7 c
Raisins—	
Loose Muscatels in sweatbox	2½c
Thompson's Seedless.....	5 c
Seedless Sultanias	3 @ 3½c

Citrus Fruits.

Prices at the Eastern auctions continue good for California oranges, and the demand is such that growers are sending the fruit East faster than is thought advisable, as there is not enough fruit in the State to keep up the supply till the end of the season.

At the New York auction on Monday, June 9th, valencias averaged from \$5.10 down to \$2.50 per box. Navels brought \$3.30 and \$4.65. Seedlings sold for \$2.10 and \$2.65, and St. Mikes brought \$3.05 per box. The Pittsburgh, Boston, Cleveland, Philadelphia, and other auctions paid fully as much as New York for oranges.

Lemons are holding even at the high prices they have commanded for some weeks, prices being from \$4.35 up to \$6.20 on the Eastern auctions. Most of the California lemons, however, are sent to the Central States, and as much as \$7.50 is said to be paid for first-class stock at those points. It is stated that there will be only about 750 cars of lemons shipped from now till the season ends from California. Regarding oranges, practically all varieties excepting valencias have been sent out.

Shipments of oranges from California up to June 8th were 10,829 cars, and lemons 1488 cars, as against 22,746 of or-

anges and 3653 of lemons to the same date last year.

Oranges are moving only in a moderate way at San Francisco, but supplies are not heavy and prices are well maintained, navels being higher. Some Florida grapefruit is selling at \$8 per box. Mexican limes are about cleaned up, and both lemons and lemonettes are scarce and higher.

Oranges, per box—

Valencia, choice to fancy...	4.00@ 5.50
Navels, good to fancy....	3.00@ 4.50
Grapefruit, seedless	2.50@ 5.00
Lemons: Fancy	6.00@ 7.50
Choice	5.50@ 6.00
Lemonettes	5.00@ 6.00
Limes	7.00@ 8.00

Nuts, Honey, Hops, Etc.

NUTS.

A few walnuts are coming in, but supplies of any kind are hard to get, country offerings being entirely cleaned up. According to recent reports, the shortage of almonds is more serious than was realized, and high prices are expected for the new crop. Present values are little more than nominal, owing to the almost entire absence of supplies.

Almonds—

Nonpareils	17½c
I X L	16½c
Ne Plus Ultra.....	15½c
Drakes	12½c
Languedoc	11½c
Hardshells	8 c

Walnuts, 1912 crop—

Softshell No. 1.....	16 @ 16½c
Hardshell No. 1.....	15 @ 15½c
No. 2	10½c
Budded	17 c

HONEY.

A little new comb honey has come in this week, water white comb bringing an advance. Old stock of the better grades is closely cleaned up, and good prices are expected for the next few weeks at least.

Comb, white, new	15 @ 17 c
Amber	11 @ 12 c
Dark	9 @ 10 c
Extracted, white	8 @ 10 c
Amber	6½ @ 7 c
Off Grades	5 @ 6 c

BEESEX.

There is not much demand, but prices are fairly well maintained on good stock, outside offerings being limited. Some dark wax, however, is selling a little under the old quotation.

Light	30 @ 31 c
Dark	26 @ 28 c

HOPS.

While several California districts appear in good condition, the Oregon crop is expected to be less than last year. There is not much trading in this market at present, and all transactions are covered by the range quoted.

1912 crop	12½ @ 18 c
1913 contracts	13 @ 15 c

Live Stock.

Notwithstanding the general scarcity of feed, values here have been fairly well maintained. Most of the stock has been shipped out of the drought-affected districts, summer feed being found in other places. The local market remains about as before on both live stock and dressed meats.

Grass-fed Cattle—

Steers: No. 1	7 @ 7½c
No. 2	6¾ @ 7 c
Cows and Heifers: No. 1....	6 @ 6½c
No. 2	5½ @ 5¾c
Bulls and Stags.....	2½ @ 4½c
Calves: Light	7 c
Medium	6½c
Heavy	5 @ 6 c
Hogs: Grain-fed, heavy.....	7 @ 7½c
150 to 250 lbs.....	7¼ @ 7½c
100 to 150 lbs.....	7 @ 7½c
Prime Wethers	3¾ @ 5 c
Ewes	3½ @ 3¾c
Lambs: Suckling	5½ @ 5¾c

DRESSED MEATS.

Steers	11½ @ 12 c
Heifers	11 @ 11½c
Veal, large	10 @ 11 c
Small	12½ @ 13½c
Mutton: Wethers	10½ @ 11 c
Ewes	9 @ 9½c
Suckling Lambs	11 @ 11½c
Dressed Hogs	12½ @ 13 c

WOOL.

Pending the settlement of the tariff question, local buyers are taking little interest in clips offered in the country, and only a limited amount of business has been done in the spring clip. Sales

have been made during the spring at the prices quoted, but it is difficult to find any standard of actual values at present.

Spring clip:

Southern mountain, free..	9 @ 12 c
Northern, year's staple...	14 @ 16 c

HIDES.

The market remains very quiet in all descriptions of hides, and prices have not changed for some time.

Heavy Steers, over 56 lbs.	14 c
Medium	13 c
Light Steers, under 48 lbs.	12 @ 13 c
Heavy Cows, over 50 lbs..	12 @ 13 c
Light Cows, 30 to 50 lbs..	13½c
Kip	14 @ 15½c
Veal	17 @ 18½c
Calf	17 @ 18½c
Dry—	
Dry Hides	24 @ 25 c
Dry Kip, 10 to 15.....	24 @ 25 c
Dry Veal, 5 to 10.....	29 c
Dry Calf, 7 down.....	29 c

Horse Hides—

Salt: Large	\$2.25
Medium	1.75
Small	75c
Colts	25 @ 50c
Dry	75c @ 2.00

Sheep Skins—

Long Wools	\$ 0.35 @ 1.25
Medium Wool, 6 to 9 mos..	60 @ 90c
Short Wool, 3 to 6 mos...	40 @ 60c
Lambs	35 @ 70c

HORSES.

While there is always a demand from the local drayage firms for good horses of the heavier types, buyers in general are taking little interest, and the market remains comparatively quiet. The long period of high prices for all kinds of feed is apparently proving discouraging to many users of horses, and no great demand is expected here during the summer months.

Heavy drafters, 1700 lbs. and over	\$300 @ 350
Light Drafters, 1500 to 1650....	225 @ 250
Chunks, 1350 to 1500 lbs.....	190 @ 215
Wagon Horses, 1250 to 1350....	135 @ 175
Delivery Horses, 1050 to 1250..	75 @ 100
Desirable Farm Mares.....	60 @ 80

MULES.

1200 lbs.	\$200 @ 250
1100 lbs.	150 @ 200
1000 lbs.	125 @ 175
900 lbs.	75 @ 125

PUBLISHER'S DEPARTMENT.

The annual meetings of the American Association of Nurserymen and the Pacific Coast Association will be held at Portland next week, and this scribe wishes he could join the crowd from this State which leaves the Oakland pier Saturday at 9 p.m. But running two papers, with the editor-in-chief having the time of his life over 6,000 miles away, means that some one must stay at the firebox and keep steam up. The meetings at Portland will be full of interest, and with the kind of fellows who will be there, we know there won't be a dull minute from the time of starting till returning. The nurserymen as a class are a "live bunch," and we trust that San Francisco will have the pleasure of entertaining them in 1915.

If a tall, brown, good-looking young man, about twenty-five years of age, rides up to your home or corral on a motorcycle, and tells you that he came expressly to see your stock and find out how you were doing things, don't sic the dog on him. The young man is our Mr. Loomis, who is sent out by this office to get news and articles for the RURAL PRESS from first hands. The stock and dairy interests combined make the biggest agricultural item in the State, and we want to give all the latest pertaining to these industries. Mr. Loomis has been traveling over California for this journal for the past two years, and he delights in telling about your stock and dairy work; so again we say, don't sic the dog on him. Rather, help him to the facts about your stock and your locality. We want them for our readers who are interested in your work.

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SAN FRANCISCO

The California Business Farmer, the “little brother” published at Stockton, is getting to the front in great shape these days. In fact, the youngster is rather getting in the way of this journal and we will have to put the soft pedal on its editor or there will be lively times ahead. Seriously speaking, the new paper is doing remarkably well, and in its chosen field is making good. The Business Farmer is catering to the men on the smaller ranches who have come to California recently and who want the a b c of our agriculture in their farm journal. After a time we expect to graduate a class of them into the post-graduate department presided over by the RURAL PRESS. The editorial matter prepared for the Business Farmer is entirely different than for this paper, and if you want to read a lively farm journal of that class send it your subscription.

Owing to the great influx of colonists in the provinces of Alberta, Manitoba, and Saskatchewan, the Canadian Pacific Railway has been compelled to establish offices at Rooms 403-404 Hooker & Lent building, 503 Market street, San Francisco. These offices are in charge of capable and experienced men, who will cheerfully answer all questions in a courteous manner. Thousands of people from the States have gone to Canada in recent years, and most of them have made money producing grain or raising stock.

Reports from Sutter county state that owing to the rain of last week and a favorable spring, grain will make nearly an average crop. Hay will also be a good crop and big prices are being secured. In Solano county grain is estimated at one-fourth a normal yield. Owing to high price of hay many of the grain fields will be cut for feed and the prospect is for a larger crop than usual in that section on that account.



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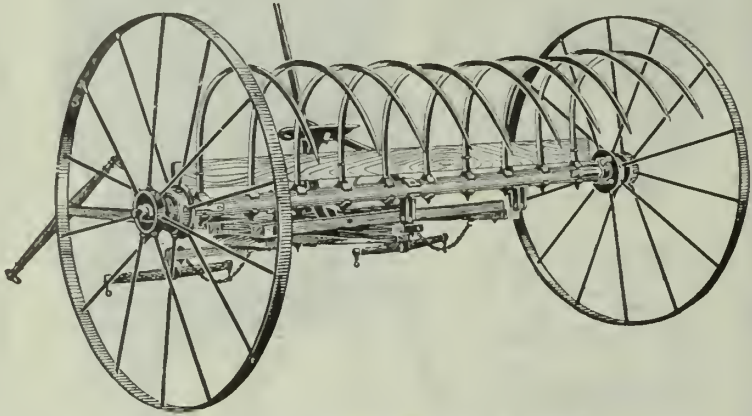
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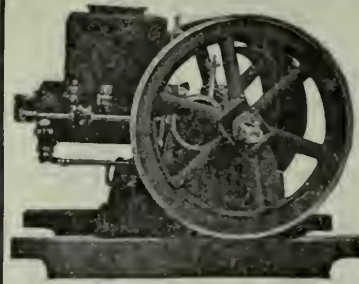
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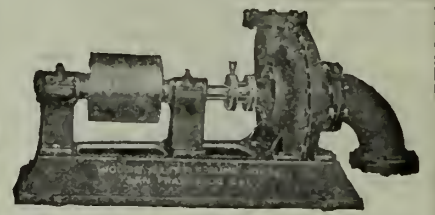
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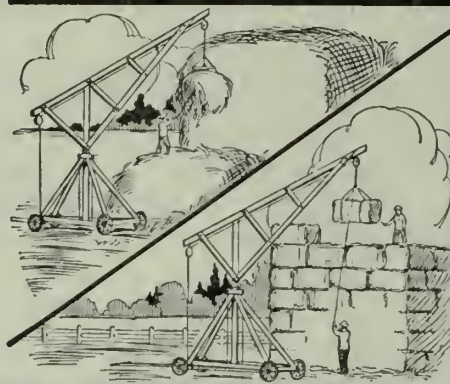
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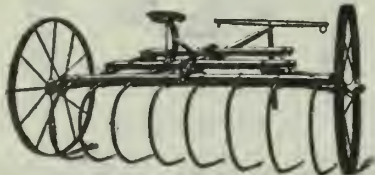
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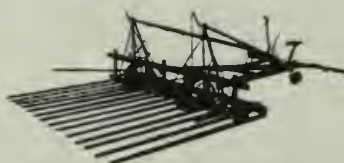
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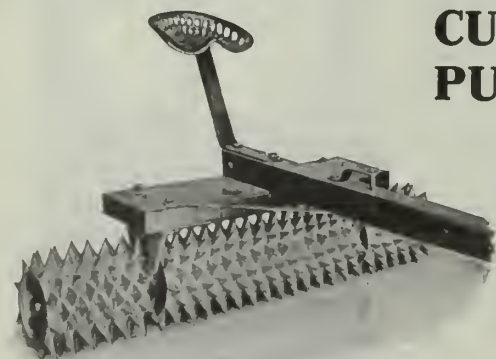
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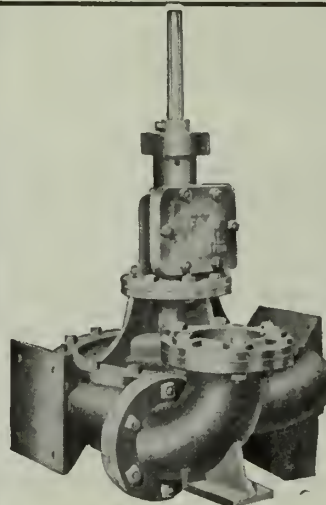


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THE PACIFIC RURAL PRESS

Vol. LXXXV. No. 25.

SAN FRANCISCO, SATURDAY, JUNE 21, 1913.

Forty-Third Year.

NEW TREES FROM OLD.

[Written for the PACIFIC RURAL PRESS by B. S. BROWN.]

Sometimes it is desirable to rejuvenate old orchards that have for various reasons fallen into disrepute. It may be that the trees were planted too close together and the growth, failing to find room for lateral development, has been skyward; or perhaps the trees by neglect of pruning and cultivating, have become diseased and their vitality weakened, or even old age alone may have marked them for the axe, because apparently they have passed beyond the limit of profitable returns. Time and again has come the question, what can be done with such orchards? Had they best be cut out, or can they again be brought into profitable bearing?

So many conditions enter into the above question that it would be impossible to suggest a remedy for any specific cause without knowing the full history of the orchard in question. There are, however, a few general principles that if judiciously applied will aid materially in rejuvenating old or unprofitable orchards. In the first place, orchards that have been neglected should be given a good pruning and then



Fig. 2.—Renewing a Tree by Severe Heading Back.



Fig. 1.—Two Years Growth on an Almond Orchard After Heading Back.

cultivated thoroughly. If the trouble is caused by trees being too close together, then good results may be obtained by heavily top pruning every alternate row. The top of the tree is literally cut off five or six feet from the ground, and a new growth allowed to come out. This, of course, destroys the crop for the year, but if a good growth is made during the summer, they will produce some fruit the second year, and the third year ought to be in good bearing condition. Fig. 1 shows an orchard near Chico that has been treated in this manner.

This will give the unpruned row a better chance to develop and will often produce as much fruit as both rows would do otherwise. When the pruned row has renewed its growth and again come into good bearing condition, then the other one can be headed back in a

similar way, giving the first one a chance to develop. Such an operation, of course, entails an extra expense and more watchful care in pruning. A heavily pruned tree will throw out numerous watersprouts, and these should be gone over once or twice during the summer, and those which will not develop into good branches removed; or if too numerous they should be thinned out. All this requires a nicety of judgment and care which with the present labor conditions is not always easy to attain.

An interesting case of an old almond tree is shown in Fig. 2. This tree stood in an old orchard that had been planted for over forty years. Many of its neighbors had died, and this one was very weak. By resorting to the heroic treatment indicated in the photograph, the tree survived and now bids fair to bear profitable crops for many years. This tree was cut back by the writer in 1910, and in 1911 the growth shown had developed. In 1912 a fair crop of almonds resulted, and this year the crop will be about equal to that of a five-year-old tree.

In some cases trees have become unprofitable, due apparently to old age alone. Under such conditions the entire orchard can be headed back in the manner just described. This will not always produce the desired results, and whether or not will warrant the extra expense will depend largely upon the skill of the operator and the general health



Southern California Black Walnut. (See Page 687.)

of the trees. Many old trees are weak and when severely pruned will immediately take on new vigor. Old trees that have made but three or four inches growth during the year have not infrequently made six or eight feet the first year after being headed back.

Sometimes working over old trees to different kinds of fruit has resulted in turning the balance to the profit side of the ledger. The trees may be in a good, vigorous, and apparently healthy condition, yet for some reason fail to bear. Such may be top-worked over to some other fruit, and not infrequently whole orchards have been treated in this manner. In parts of the San Joaquin valley, many of the IXL variety of almonds have been worked over to plums and prunes.

(Continued on Page 687.)

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FRANK HONEYWELL - - - - - Manager
W. H. SCHRADER - - - - - Adv. Manager
D. J. WHITNEY - - - - - Associate Editor

CALIFORNIA WEATHER RECORD.

The following rainfall and temperature record is furnished the PACIFIC RURAL PRESS by the United States Department of Agriculture Weather Bureau, at San Francisco, for the week ending at 5 p.m., Jun. 17, 1913.

Stations.	Rainfall Data.			Temperature Data.	
	Past Week.	Seasonal to Date.	Normal to Date.	Maximum.	Minimum.
Eureka .....	.16	34.55	45.77	62	48
Red Bluff .....	.00	18.37	24.91	90	56
Sacramento .....	.00	8.03	20.09	86	50
San Francisco ..	.00	11.95	22.27	66	50
San Jose .....	.00	6.35	16.79	78	42
Fresno .....	.00	6.22	9.68	94	54
Independence...	.00	4.45	9.53	88	44
San Luis Obispo ..	.00	7.99	20.51	78	44
Los Angeles .....	.00	12.84	15.64	76	52
San Diego .....	.00	5.90	10.01	68	56

The Week.

Last week there appeared in our live stock department a statement of opinion and observation regarding stave silos and the California climate. California has a hard enough climate on all wooden silos, at the best of it, and the stave silos have suffered more than the resaw kind. Like everything else, however, there are stave silos and stave silos. Rather, it would be better to say, there are stave silos and there will be other and different stave silos, for while nearly all the stave silos previously built here have been unsatisfactory, and the few fairly satisfactory ones have been so only through the best of care, there is always the chance of improvement. We have just had the pleasure of examining the plans for a new type of stave silo especially prepared by the De Laval Company for California conditions. None have been erected as yet, though several have been ordered. When the first one goes up, we believe that a satisfactory silo will be prepared for California, for it is such a radical departure from the ordinary method of construction, not only in the formation of the staves, but in the doors and several other parts that it can nearly be considered a fourth or fifth type, the others being the ordinary "water-tank" silo, the resaw silo, the solid concrete and concrete block silo. This is a very involved subject all the way through, and in the near future we will have an account of the reasons why all types of silos have advantages and all advantages. The silo is a coming feature in California dairying, and it was never coming faster than at present. The more facts we can have, the better.

Australian Beef.

San Francisco attracts the eyes of the rancher in many ways. An example in live stock lines is in the shipments of Australian beef, which very naturally arrives in San Francisco rather than any other part of California, and might be said, the Pacific Coast. This beef possibly might have made a big difference to the stockmen, but prices apparently have been unaffected. There was an

hurrah in the papers for a day or so about cheaper beef, but it seems to have been more expensive beef after all, and this is how it happened, according to Dr. Charles Keene, State Veterinarian: "This frozen meat, when it is thawed out, becomes soft and the juice runs out, causing it to shrink. When it is cooked it shrinks still more until the net weight is very much diminished by the time it is ready for the table. This shrinkage will more than offset the higher price that must be paid to get refrigerated meat. Of course, the refrigerated meat also shrinks to some extent in cooking, but it is scarcely noticeable." The ultimate consumer, looking at that statement, will groan and say: "Is there no escape from the high cost of living?" The stockman will feel that fate is fairly kind after all. Now if they would have just as much trouble in selling Australian wool here as Australian beef, the stockman would be fixed all the way along.

Fruits Better Fixed.

The situation in the raisin industry is interesting in more ways than one. The raisin growers were helped by organizations and were injured by organizations, and got so they would have nothing to do with any. It was blood-sweating work to get the California Associated Raisin Company started, and it was only started in a very round-about way. Then after it was started it was nip and tuck to see whether the necessary amount of capital could be subscribed or not. Then when it was subscribed everybody, except possibly the packers, felt so happy that they talked, not of the \$750,000 that was required and subscribed, nor of the \$1,000,000 capitalization permitted, but of the \$1,500,000 capital stock, and in addition the peach men got enthusiastic and started a peach association, too. "The proof of the pudding is in the eating," so we can tell better about the success after the season is over. But the growers had things their own way once before, when they were without capital and working under voluntary and non-enforceable agreements. Now they have the money, an overwhelming majority of the crop contracted for, the unsigned growers all boosting prices and the packers where they want them, also arrangements for marketing the crop are far along. The packers have been quoting peaches low, the California Cured Fruit Association gave a little light on conditions and the low quotations were not made any more. We will wait and see where they go to, but they are sure to be better than they would be otherwise. Thus co-operation among producers is helping two of the greatest crops of California to be where they should be.

Out in the World.

[BY THE EDITOR.]

[In our last issue Professor Wickson sketched the experiences of the American Commission from the first sighting of land on the east side of the Atlantic to the arrival in Rome. Below he endeavors to hit the high places of interest and significance of the three days sojourn in that city.—ASSOCIATE.]

The center of the Commission's interest in Rome was the International Institute of Agriculture, established by the King of Italy at the suggestion of David Lubin of California, as our readers already know. This institution is housed in a fine building, built for it by the King, which contains large assembly rooms, private offices for the delegates from the forty odd participating nations, reception rooms, libraries, clerks' rooms, and, in fact, all necessary apartments for deliberative and social assemblies, for the compilation

and publication of the wisdom of various kinds, which is making the Institute a recognized power in the agricultural world. It seems to be an open question as to which will prove the greater power in the pending battle for the world's peace—the Carnegie establishment at the Hague or the Lubin establishment at Rome, and it adds to our interest in the contest to know that America will win in either case. Evidently it is a case of the New World teaching the Old World how to behave, and just now it looks as though the world is more likely to be moved through its stomach than through its heart, or, in other words, the yearning for food is stronger than the commands of conscience. The International Institute of Agriculture stands for fair treatment of food producers, in production, distribution and finance, and the nations of the world are working through this agency, and when they attain that end the world will be at peace. This is no discovery of ours. It was frankly stated by various ambassadors at the meetings in Rome and acknowledged to be a world secret—which seems to be the proper term for a thing which is shouted by diplomats at banquets, but spoken only in whispers in their cabinets. Diplomats are funny: it bothers us a little to get onto their curves.

We mention this to show how profound a thing this Commission becomes in the eye of diplomacy. The United States, a first-class power, in some ways at least, sends out, under the auspices of the International Institute of Agriculture, the largest delegation it ever accredited for any purpose to the foreign powers, commands its ambassadors to wait upon it and exalts the purposes for which it has been created. The attitude is taken very seriously by the powers, and governments are receiving the expression of it with all the social pomp and circumstances of which they are masters.

Mr. Lubin Makes a Good Turn.

On the first morning after arrival in Rome, the Commission assembled in the beautiful audience room of the International Institute of Agriculture and organized for its work. The hero of the occasion was David Lubin of California, the father of the Institute and the projector of the American Commission. Mr. Lubin gave himself no place upon the day's program, but was quickly brought into the foreground of it by the Commission itself. Certain parties who had been guarding that colossal loving cup of which we wrote in a previous letter, nervously scanning the horizon for pirates all the way across the Atlantic, naturally desired to be relieved of the responsibility of defending it from brigands and was in haste to be rid of it at the first decent moment. The presentation was therefore made, and Mr. Lubin was overcome by emotion at being thus signally honored by his countrymen. In spite of such natural feelings, however, Mr. Lubin began informal remarks which soon developed into a thrilling denial of personal interest or ambition in his work. He had worked to set up a sign for the nations that agriculture was the foundation of the world's existence and greatness and that when the world worked together for the just rights of agriculture the world would be at peace. The agency which promised most to bring the world to consciousness of this fact was not his personality, and therefore his countrymen should not bring honors to him. Such honors belonged to the International Institute of Agriculture established by the nations on the initiative of the King of Italy. Calling to the president of the Institute, who was an interested observer of the American proceedings, Mr. Lubin presented to

him, for the Institute, the great loving-cup and its emotional contents, to remain in its archives forever as evidence of the early and unique method of the American approach to it as a source of world wisdom. The president accepted the gift from Mr. Lubin with appreciative tribute to the giver as an unselfish worker for the world's good, and the Americans were content because they found that the man whom they wished to honor with a gift won new honors by refusing to accept it for himself. The incident was very dramatic.

The Institute Points the Way.

One interesting and valuable phase of the welcome which the Institute extended to the Commission consisted of addresses from representatives of nearly all European countries, describing in brief what each of them had done to finance agriculture and to promote co-operation among farmers, and assuring the Commission that they were cordially invited to accept the hospitality of the various governments and peoples. These addresses were in different languages and were clearly translated. We cannot undertake to reproduce them in detail: all students of the subject can secure the full text of them in the government reports, which will be issued after the return of the Commission. The general fact is that co-operation of farmers to accumulate capital and several kinds of institutions to work for these purposes have existed in Europe for centuries, proceeding very slowly and obscurely until they blossomed out into greatness and public recognition during the last quarter of a century. They have been ministered to by the enactment of laws, by grants of public funds, by donation of private money, and they have long been recognized as favors to which food producers were entitled and as contributory to the peace and welfare of the State. The present attitude of governments toward them is more distinctly and emphatically favorable because, in the increase of general enlightenment, it is more clearly perceived that they minister to the content of the working classes and calm their restlessness by disclosing a peaceful way to struggle for greater prosperity. This notion may crop out again later, unless something should knock it out of us.

A brief reference to the declarations made by the representatives of the several governments at the welcome meeting aforesaid, may be undertaken in this way:

In Germany the co-operative movement for agricultural advancement began with Frederick the Great. It is now the most important basic factor in German agriculture. It invokes the principle of Christian brotherly love, and it has freed the farmers from slavery to self-seeking capitalists.

In France systems of agricultural credit have reached immense sums of money; they rest upon personal confidence in the borrower and his desire to discharge his obligation. In loans covering \$16,000,000 practically not a centime has been lost.

In Austria loans to organized farmers by savings banks and by neighborhood farmers' co-operative banks are the foundation of a growing prosperity, and co-operative buying of farm tools and supplies is placing improved materials in the hands of producers at greatly reduced prices.

In Russia credit extended to agriculturists shows practically no losses by non payment, and is therefore in good repute.

In Italy agriculture is being extended wonderfully by co-operative banks of various kinds, while co-operative buying and selling, co-operative manufacture of farmers supplies, etc., are largely carried on. Through the whole length of Italy this work is going on and is most beneficent in its results.

In Spain agricultural credit based upon mutuality and co-operation began many years ago, and has recently shown great development. The government is now planning to federate all co-operative institutions and to use this agency to bring farmers upon abandoned lands by colony establishment. The government encourages co-operative institutions by furnishing one-half the capital required for their establishment.

Denmark, Holland and Belgium reported great things doing for the promotion of agricultural interests through co-operative enterprises favored and assisted by the governments of these countries.

Great Britain had done little to promote co-operation in agriculture except through government agencies for increasing knowledge of value in promoting production. In Ireland actual co-operation among farmers was beginning to show good results.

Thus, at the meetings in Rome, representatives of the European nations briefly outlined what there was for the Commission to study in their respective countries, and all extended a cordial invitation to the investigators to see for themselves whether there might be anything which could be turned to the advantage of agricultural progress in the Western hemisphere. All the nations represented in the greetings to the American Commissioners were very cordial in their utterances, and many of them gave with considerable detail the plans which had been laid for the reception and entertainment of the visitors in the countries covered by their itinerary.

A Suggestion to the Discoverers.

The United States Ambassador to France, Mr. Herriek, who has shown himself to be quite a discoverer along lines of agricultural credit and co-operation, met his countrymen in Rome and helped them notably in their effort to find themselves abroad. He suggested that there are several things rather new to Americans which they should carefully look into. One is the principle of "amortization," by which a long-term loan could be made to pay off the principal as well as pay the interest. Loans are made in Europe covering decades of time, and in that way the annual payment on the principal is so small as not to be a burden upon the borrower. Another principle applied in Europe was the creation of debentures which are handled by co-operative banks in such a way that long-term loans are an acceptable investment to both large and small investors at a relatively low rate of interest. Another principle was provision of "open account" credit so that a farmer could have his security recognized as valid to a certain amount, of which he could draw what he found it necessary to use, and pay interest only on the amount actually used during the time he found it necessary to use it. Instead of being carried by a store-keeper, a local note-shaver, or a local bank charging a high rate of interest, the farmer could have from the co-operative institution of which he is a member, such money as he needs, with a minimum discount and expenses and at a low rate. Another subject to be observed is the development of individual initiative and self-confidence by the encouragement of desire for improvement and furnishing the capital necessary to achieve such improvement. In this development the governments act as umpires to see that the game is fairly played and all must play their parts. Farmers must initiate, understand and inaugurate enterprises, and to this end they receive the encouragement and assistance of governments, institutions and philanthropic individuals. This relation, as the farmers grasp the significance of

it and proceed upon it, may lead to a higher type of national civilization than the world has yet known. This will be the result of an evolution of individualism among the agricultural classes which has not hitherto existed among them.

A Question of Individualization.

It was a suggestion of this kind that Mr. Herriek made, as we remember his remarks, which we do not attempt to quote accurately. As we heard him, and many times since, a question has arisen in our mind as to how far such a view of the existence of individualism among farmers would apply to American conditions. Perhaps the suggestion was made as a warning that the upbuilding of individualism among European peasantry, until the people gain self-confidence and initiative enough to act together intelligently for their own good, was not at all the avenue along which American farmers must be led to co-operation. We are inclined to think that the American problem is exactly opposite to that of Europe. American farmers, in parts of the country known to us, have too much individualism rather than lack of enough of it. They are born and bred to be independent and self-reliant and to carve out their own fortunes. They have never been a dependent class. They do not, therefore, need to rise to individualism. Their problem is how to abandon the individualism which has characterized the pioneers and the development of industries in a new country—not wholly, but sufficiently to co-operate intelligently and effectively. The European co-operators have done wonders for themselves and for their countries' prosperity under the patronage and actual leadership of the higher-ups. The American farmer has no higher-up class, and acts independently in farming, in politics, in religion, and has acted independently also in selling his products, and in borrowing money on his own individual responsibility. In these latter directions he has never to any extent used the power of organization, and has therefore been subject to unfair exactions from owners and managers of capital. Apparently he has something to learn from two things which appeared clearly in the discussions in the meetings at Rome: first, the preference among capitalists for loans on agricultural security because they consider it most secure; second, the success of organized farmers in securing longer terms of credit and lower rates of interest than managers of money would give until forced to do so in competition with the co-operative credit institutions. This is the desirable thing, and it may appear to be clear, after further investigation, that the attitude toward individualism must be to a proper degree repressive, while in Europe it must needs be promotive.

The Flight from Rome.

But we are becoming very serious as a result of constant attendance upon the discussions in Rome. Thus engaged, the Commission could do very little with the monuments of antiquity which surrounded it. Rome of the Caesars and Rome of the Renaissance for once surrounded a group of visitors so engrossed in present-day problems that they had no thought of what people usually do in Rome. Social favors were showered on the Commission by modern Romans, but all the conversation at banquets and receptions was of farming problems, until it became almost an obsession. To escape from such a result of continued academic discussions, the Commissioners welcomed the departure from the city to the country. They had heard so much about co-operation that they longed to see a co-operator. If such are found they will be introduced to the reader in our next letter.

Did It Pay to Fight Frost?

[Written for the PACIFIC RURAL PRESS by
J. E. ADAMSON, Pomona.]

There is beginning to filter into the public mind the fact that there are two sides to the question of frost fighting. When the campaign was on, the work hard and the fighters weary, when the smoke was thick and the residents of the town thought only of that, there was a tendency to belittle the efforts that were made. Some of the best of the fighters even lost a little of their courage during the time when the shipments of frosted fruit held the market down to bedrock.

In some cases it even went below bedrock, and there was more than one case of "red ink." But in the last two months the returns from fruit picked from fired orchards has made things look different, and there are no more doubts as to whether it paid.

The outlay in the Pomona district was about as follows: \$40,000 for equipment, which will show a depreciation of about 20%, or \$8000; oil burned, about \$30,000; and labor and other expense, about \$5000. The labor item is guesswork, as most of the work was done by the growers.

This would make a total charge of \$43,000 for the protection of over 2000 acres, some well fired and some not so well, but all fired.

There have been returns of cash to June 1 of \$269,294; there are still unsold more than 20 cars of navels and 60 cars of valencias, besides some miscellaneous varieties. There were sold the last week of May, 22 cars, which brought a total of over \$33,000 f.o.b., and should these prices keep up, the income for fruit to the members of the Pomona Fruit Growers Exchange will be not far from \$400,000.

This money comes from fruit that would have been absolutely useless had it not been for the big battle that the growers waged against the frost. Practically all attempts to sell unfired fruit brought disaster, and no fruit except that from protected orchards was able to participate in the best market at the extreme end of the season.

This would seem to show a net gain to the community of at least \$350,000, but the whole story is not told in figures prefixed by the dollar mark. The beautiful groves never looked better, and are no doubt in much better shape to set the coming crop than trees that were defoliated, even if the branches were not hurt. Besides that, the street trees are in fine condition, which would seem to the unprejudiced to more than compensate for the smudged curtains and injured feelings of the housewives of the town.

Comparisons are odious, therefore I will refrain from drawing any attention to the ills of other places naturally more favored, but the business men of some of these places are, to say the least, amused at the attitude of some of the good people of Pomona in their efforts to stop the work of the frost fighters.

The business men of the town realize the value of the work done, as is shown by the remark of one of them, when asked about business conditions. He said that he "could notice a change for the better as soon as the Exchange began to ship the good fruit."

Many details remain to be worked out to make the equipment and the organization perfect, but looking at it from every point of view, it certainly did pay.

WATER-TABLE UNDER CITRUS TREES.

To the Editor: Please state in your question column what is the closest to the surface the underground water-level may be in first-class citrus land. If sour root be used, can it be closer?—E. B., Yuma, Ariz.

That is a difficult question to answer. Relating to a question of somewhat the same bearing, Prof. Wickson a year ago in these columns stated that as close as he knew the water-table to be under good citrus trees was about six feet, which does not indicate that under certain conditions it might not be closer. Trees might possibly be grown with the water-table down only five feet, pro-

vided it stayed there without variation, while a water-table at seven feet that would occasionally rise to six feet might make successful citrus production impossible. Likewise the soil could be more shallow if light than heavy, as less would be drawn up by capillarity and there would be more air for the roots. The orange is a shallow rooted tree, but we would be inclined to play safe if there was any danger of the water-table being too close to the surface. The sour root could stand water troubles better than the sweet root, but we would not impose on it. If any of our readers have information or advice to add on the matter it would be welcome.

IRRIGATION OF CEREALS PAYS.

Irrigation of alfalfa and fruit trees is common in California, irrigation of cereals unusual. A demonstration of the great profit from irrigation is shown in the accompanying illustration of a barley field of T. B. Gibson, the noted Shorthorn breeder of Woodland. The rainfall has been so poor that this barley, if not irrigated probably would have been worth very little. As it is the field is estimated to make 40 sacks, or 2 1/5 tons



to the acre. If without irrigation, a yield of 10 sacks had been secured, which is improbable the crop on this field would have been worth \$3,425. At the time the photograph was taken the estimate of 40 sacks to the acre would have made it worth \$13,700. The cost of irrigation was \$250.

This land is naturally very fertile or it would not have produced so well. It was naturally fertile, but the fertility was vastly increased by the growing of alfalfa, this being the first crop since the alfalfa was broken up. A person can afford to grow barley on land like that even if he loses a year of alfalfa. He cannot afford to be without irrigation water, if one irrigation will make a difference like that.

POLLEN FOR NAVEL ORANGES.

To the Editor: The following was taken from "Citrus Fruits and Their Culture," by H. H. Hume. "The flowers of the navel orange are entirely lacking in pollen, or only poorly supplied." If this is true, what variety of orange would you plant in a navel grove to supply pollen at the proper time?—W. S., Plano.

We would not plant any other orange near the navel for the sake of supplying it with pollen. Pollen is only needed to make seeds, and by the same process to make the fruit set, and navels do not make seeds, except rarely, nor do they need pollen to make the fruit set. If you want to grow another variety for its own sake it will do no harm to be near your navels, but it will not do any good, either, as far as anyone believes.

DRYING OF ALMONDS.

To the Editor: I am sending you under separate cover some pieces of almond trees and would like to have you tell me what is the matter. The trees are three years old, made a five-foot growth last year, and they came out this spring the same as the rest; but when the leaves were half grown they turned yellow and curled up and fell off, started out new leaves and then died. I went back to good wood, but it did no good. My neighbor says his are dying from the bottom. I have lost five and my neighbor the same out of a total of 1400 trees. We will consider it a favor if you can tell what is the matter.—Subscriber, Paradise.

No disease or evidence of injury from insect pest is apparent. On the other hand, the branch with leaves on and the bark generally is very healthy looking. We would say to everybody that whenever there is trouble in the top of a tree without apparent cause, the best thing to do is to dig into the ground. We would hazard the guess that the trouble here is either crown-gall or lack of moisture. The affected trees may possibly be on a streak of sand and therefore dried but earlier than the others. If it is crown-gall, you will find the gall near the crown or a little way along the roots. If it is lack of moisture, you had better try to irrigate some, if only

from a tank wagon, to enable healthy trees to come through the season.

WILD CURRANT AND PITTOSPORUM.

To the Editor: I am sending a sample of wild currant and one of pittosporum, and would like to know what is the matter with each and what to do to remedy the trouble. I have also found on rose bushes these little red beetles which I am sending, which make countless holes in the buds. I should be glad if you would tell me what they are and what to do to get rid of them. Are the ordinary snails one finds in the garden of the edible variety?—F. B. N., Oakland.

The currant is being weakened by the rose or some similar scale. You can overcome this by spraying with a solution of whale oil soap, one pound to five gallons of water. On the pittosporum, the black scale causes the trouble, and applications of this spray three weeks apart should clean things up. The insects are the rose snout beetle, which can be destroyed by arsenical sprays, lead arsenic rather than paris green so close to the bay. The yellow creatures often called snails, but in reality slugs, certainly are not edible for anything but ducks. The small snails with shells on their backs, rarely found in gardens, may possibly be edible, but the genuine edible snails, as we understand it, are a larger variety. Anyway, our stomachs, or should it be stomachs, are too delicate to tackle the California variety.

Oak Root Fungus---Fertilizers.

To the Editor: Will you please let me know what caused the leaves on some of my French and Sugar prune trees to turn yellow? They started two weeks ago. Some trees have done so since they were planted three years ago. The others made fairly good growth before that. There is ample moisture in the soil and the balance of the trees are nice and green (no borers). Trees were raised near Gilroy and the grafts were taken from large trees. My land was cleared at least 15 years ago. Is there something lacking in the soil where oak trees may have stood, or were the trees already diseased? Is there any fertilizer to give them the healthy green color? Can it be applied now with good results, or when should it be put on, and how much should be used? No one here seems to understand the cause of the trouble. I will be thankful if you can also advise me of the cause of my Washington navel leaves being diseased. Will the same fertilizer help some of my pale pear trees? What is the best fertilizer on the market to make small trees grow more? My soil is deficient in phosphoric acid. The Etersburg strawberries are fine and make the largest plants we have seen.

P. S.—My trees are on Myrabolan root. Healthy trees averaged three feet of growth this year, others about one foot. Hope we can save them. Most of my soil is dark red. Trees are affected the same in better soil.—M. J. P., Morgan Hill.

There is no sign of disease on the leaves, and by what you say, the trouble is evidently with the tree as a whole rather than the leaves, anyway. As long as there is moisture enough in the soil and it occurs on two types of soil, most of the trees being healthy and making good growth, evidently a deficiency in plant food is not the cause. About the only thing that appears possible is the oak-root fungus, and a little investigation will show whether this is the case or not. This disease occurs where old oaks have stood, but only when those oaks had the disease, too. It could easily have lived fifteen years in the soil, only most any fruit trees planted on such land would have been affected very quickly, in a year after planting, at least, and most likely much sooner. The disease slowly spreads from one tree to another, making a round affected area. If the newly affected trees are not close to the old ones and trees next those affected for two or three years are perfectly healthy, it probably is not this disease. You can also find out by digging down and exposing the roots. You can frequently find black strands near the bark and entering it. The soil sticks to the bark and the bark is swollen. Under it are white, fan shaped spots of fungus growth.

There is so little chance of cure that the University Bulletin on Plant Diseases recommends no treatment for diseased trees. The best thing to do is to dig them up, take every bit of wood large enough to notice out of the ground and let the fungus eat up the rest and die. A trench can be dug around affected areas to prevent the fungus from spreading to other trees and the affected soil kept moist to make the fungus eat up all the wood left. Such work has, however, been done very seldom, unless as an experiment. The most common way is to grin and bear it.

This trouble could affect the orange, which is quite susceptible to it. It could hardly affect the pear, which is considered immune. The black walnut and fig are also practically immune and can be planted on affected soil if necessary. Other troubles might cause these symptoms on the orange also, but they need not be spoken of here.

There is just a chance that crown gall is the trouble with your prune trees. You can soon see by digging down around the crown and seeing if

there is a big swelling there, which can be cut out and the wound disinfected, which process is not entirely satisfactory. This would not be the trouble with your pear or orange trees, which are probably suffering from some adverse soil conditions. There is also the chance of sour sap. If it is none of these things, we give it up as a bad job, and would suggest that you get a plant pathologist from the University of California to come down and examine the trees in person and hope to know results.

There is no fertilizing that will overcome or even help oak root fungus or crown gall, though it might prevent serious weakness and physiological troubles. The first fertilizer to recommend is barnyard manure to give life to the soil. Another practice for every orchard where it can be done is the growing of a cover crop in winter, either with the natural wild weeds and grasses or vetch or burr clover; both of these to supply vegetable matter to the soil. The barnyard manure under any conditions might well have some superphosphate mixed with it, and especially in your case, seeing that your soil is deficient in phosphates. Believe you had better wait until spring before putting on commercial fertilizers, and put them on right after plowing, or if you plow early, just before the buds start out.

For your young trees, put on a mixture which any fertilizer company can provide of "nursery stock," averaging possibly 8% available phosphoric acid, 3% organic nitrogen and 1% from nitrate of soda or ammonia and 2% potash from the sulphate. More or less variation will not hurt from these figures. The amount to put on will depend on the composition. Anywhere from 250 to 1000 pounds will be a small enough dose, some fruit men putting on very much more. Such fertilizer will be good for both pear and orange trees, but always we would go strong on manure and cover crop and on phosphates, which with your type of soil possibly would be better in organic form than as superphosphate, except that superphosphate which you mix with the manure. Will be glad to hear of your results in hunt for disease and from fertilizer.

LOSS OF TOMATO BLOOM.

To the Editor: I have put out some tomato plants and they are very strong and healthy and full of blossoms, but I notice there is something cutting the blossoms off and just about to ruin my plants. I will appreciate it if you can tell me what I can do to prevent this.—W. W. D., Arboga.

The trouble with your tomato plants is that life is too easy for them, that they have so much moisture and plant food that they can grow comfortably and rapidly without thought of the future. So, because they do not have to think of making fruit, the blossoms drop off. This is a very common occurrence with tomatoes, especially in home gardens where the owners have not the experience or information on the subject that they might have, and give the tomatoes too much water. Many other plants act the same way and will not set fruit while they can grow easily, and only begin to produce when they have made a great growth or when moisture begins to get a little short. If you irrigate the tomatoes, stop, and put no more water on until the plant begins to set fruit as if it meant business, or gives some sign that water would be appreciated. If the ground is naturally moist you will have to wait until the plants make more growth and the weather gets drier and hotter, and the plants will

then set fruit. If we have misunderstood conditions and some insect is actually injuring the plants we will need more information on the subject before we could say what the trouble is.

FERTILIZING FOR DOUBLE CROPPING.

To the Editor: On some rich bottom land here I have been growing two crops a year, sometimes barley and beans, and sometimes barley and potatoes, and the crops now are not as good as they should be. I want to keep on raising two crops a year and would like to know what kind of fertilizers to use.—A. P., Lodi.

Of the four leading plant foods, nitrogen, phosphoric acid, potash, and lime, the beans should provide enough to keep the land supplied fairly well with the first named, and only the other three, or the first two of them, will probably be lacking. However, possibly also you are using up the vegetable matter in the soil too rapidly by not plowing in enough stubble or bean straw, and if so you will need a liberal application of barnyard manure once in a while. You can tell whether that is needed by noticing how much "life" there appears to be in the soil. It seems very certain that phosphoric acid and potash are being depleted with this heavy cropping, and you should fertilize part of the land with superphosphate, part with sulphate of potash, and part with both to find the best combination. Any fertilizer company will fix up the proper amounts and combinations if you will tell them your circumstances and the amount of land you have. It would be an excellent thing also to try some lime on a small plot, unless by testing with litmus or acid you find that your land is sweet enough without that. Fertilizing with the other two materials named quite surely will be profitable and cheaper than if you had to buy the nitrogen the beans gather from the air.

BLACK SCALE ON OLIVE.

To the Editor: Will you kindly advise me of the name of the scale as per samples enclosed, which I find are occurring in large numbers on the under sides of the leaves of my olive trees here at Los Altos? Also what is the most effectual treatment for their removal? Is there any spray which can be applied at this time, just as the blossoms are falling?—R. W. L., Los Altos.

This is the black scale, the most widely distributed scale of serious importance in California. Such scale can nearly always be identified after it has reached a fair size by a very distinct and well shaped letter "H" on the back. It is necessary to fumigate citrus trees to control this scale, but this cannot be done satisfactorily on other trees. If it is necessary to check it, spraying with distillate emulsion will kill partly grown insects. It will not kill the big scale such as you see now, which answers the last part of your question. It is doubtful if spraying ever need be done on olives. In the first place, the scale apparently does little injury to olives except when very numerous. It would also be hard to make a thorough job in spraying olive trees. Likewise there are insects that hold it in check so that it seldom gets very bad on this fruit, though the same number would do much harm to some citrus trees. As long as there is scale present at all times, as in the coast valleys, these insects are present also and keep the scale from multiplying injuriously. Until it does get bad there is no need for worry and the leaves you sent, for example, appear very clean and healthy. This scale lives on a wide variety of plants, but is adapted especially to the olive, getting its name, *Saissetia oleae*, from it.

Seed Selection.

[Written for the PACIFIC RURAL PRESS by E. A. HOWES, University of Nevada.]

It has been suggested to the writer that some hints in detail as to methods of securing good seed on the farm, would be welcomed by Nevada ranchers. The farmers of Nevada are showing commendable interest in the securing of good seed from outside sources and the next step is the production of good seed at home.

If you set out to build up a good herd you do not use nondescript stock as foundation; within the limits of your opportunities you start with good material. It is just as reasonable that one should start with good foundation stock in the case of seed. At the expense of a little time and trouble find out where you can get good seed of the variety you wish and true to that variety. At the station we have preferred to buy our wheat, oats, barley, etc., from men of good repute in the seed world, generally members of some Seed Growers' Association. We preferred to buy grain from such men when we could get showier stuff from others, because we knew we were getting pure grain.

For instance we purchased some barley that was decidedly bad in color; a farmer who saw it, considerably offered us some that he had, purchased in Nevada, that was of splendid color. A test showed that our barley—which we were confident was pure as to variety—weighed four and one-half pounds more per bushel, while our friend's barley consisted of a mixture of two types. It pays to start with seed of which you know the derivation.

SOIL PREPARATION.—It is scarcely the object of this article to deal with the soil preparation, and yet we cannot pass on without a word of warning as to the seed bed. It is a good practice to plough in the fall, early enough to start the growth of all volunteer crops, grain or weeds. When this is ploughed under in the spring, or well worked over with a disc harrow, followed by some sort of leveling contrivance, the ground should be in a sufficiently mellow condition. If one is not in a position to sow the seed at once, he should be careful, when he does sow, that some grain, weed, or alfalfa has not already secured a spring start on the grain he is about to sow. In such a case disc or harrow again.

Do not sow too thickly. We have been criticized for the thinness of the seeding necessary, in case of the grain we have sent out for cooperative experiments, to make grain and space fit. We claim that as a rule seeding for grain production is generally too thick to secure best results. Just before sitting down to write this article a report was handed us which bears on this topic. A certain well known station in the east, after a five year test of seedings, ranging from one-tenth of a bushel to eight bushels per acre, finds that in the case of oats, (the only one reported) one and three-fifth bushels per acre gave the highest yield. We have been recommending two bushels per acre, but many of our friends have warned us that we were too parsimonious in this matter. However, for the present we shall stand pat as to what we have prescribed in the case of oats.

If you irrigate, and if you want the most seed of the best quality, use just enough water for normal growth, for proper filling to maturity, and no more. It is safe to say that most farmers use too much water on their fields. There is a happy medium, because too little water may produce good seed though too little of it. It is hard to say just how often one should irrigate because soils and seasons vary; each must work out his own salvation in this matter, and he

should begin by trying to get along with less. He may be allowed three feet of water by law, but it is no more necessary that he use it all than it is necessary that he leave a clean board every time he rises from the dining table—also in neither case can he hope for the best results.

METHODS OF SELECTION.—Before we can go farther with our discussion it is necessary that we take up a certain principle involved in seed selection. We have one crop growing, let us say it is now fully headed, almost ripe, and that we are up against the proposition of securing the best seed possible from the crop. Of course this presupposes that the grower realizes the value of seed selection. The seed will be sown next year to produce other plants; the seed will produce these other plants according to the value of the plants from which this seed was obtained. This involves a selection or setting aside of the best. How is this to be done?

There are three methods of seed selection all looking to improvement of variety and strain. These are: Selection of seeds, selection of heads, and selection of plants. The first method is the most general, because when the farmer or dealer runs the grain through the fanning mill, separating the small or light seed from the plump and heavy, he is practicing this method, and no one will deny that he is doing a good thing. Once a certain would-be philanthropist visited the country schools and set the child against the father. He had the boy take a certain amount of grain, intended by his father for seed, and from this select only the plump kernels of good color. The boy sowed these in a plot of his own and later gloated over the fact that he a better crop than his father. The good work was carried on for three years, the selection of the second year being made from the product of the selected seed of the first year. In three years the boys of those schools had demonstrated that there was a decided virtue in seed selection. We shall refer to this case before we are through.

The second method, head selection, is not common now. The farmer goes through the standing crop and breaks off the best looking heads of grain, saves these for separate threshing and uses the product for seed the next year. This also is a move in the right direction.

PLANT SELECTION.—The third method is growing in favor. The farmer goes through the standing crop and selects (marks, or possibly pulls at the time) the best plants, those having the greatest number of stools bearing the best heads which are of best type, i. e., contain the greatest number of best filled spikelets—we have not space for details as to types, but these may be found in any book or publication on farm crops. For that matter good common observation would tell us which type of head produced the most for us. The selected plants, made into bundles, are threshed separately and the product used for seed—the balance of the crop being available for seed purposes of some kind.

This third method, plant selection, is now generally recognized as the logical one. The plant is the unit, the individual; the head and seed are not fully representative of individual characteristics. For this reason the schoolboy's work was slow and labor was wasted. It was a good work, but it was the result of misapplied energy. The boy picked out a large seed, let us say of wheat. He picked it out because it was large, and that was the whole recommendation. He did not know what sort of a plant individual produced that particular seed; it might have been a plant



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with a few heads, with weak and scattered spikelets on the head. Indeed its size may have been due to the fact that few seeds were produced by that plant and these few seeds were consequently larger. He did not know, when he selected this seed, but what he was being instrumental in perpetuating a comparatively a poor type of plant.

DEGREES OF SUCCESS.—That this method of selection will eventually win out, that the margin of success is wider than the margin of failure, has been abundantly proved, and we cannot hesitate when it comes to advice in the matter of sowing the largest seed; but we must maintain that better results may be achieved in less time by plant selection. The head selection, the second method, is a step forward, but here the same line of argument holds good—the large head does not indicate the best plant, and the plant is the individual.

If you select an animal you study all his parts, you also study his pedigree if you are alive to your best interests; you do not select him because of some one outstanding strong point. Our position can be shown in a nutshell when we say that we would prefer to sow comparatively poor looking seed, if we were sure it came from good stock, than to sow big seed that came of nondescript descent.

After the selected bundles have been threshed, the seed should be cleaned and stored in a dry place. Next spring sow this seed in what is sometimes called a breeding plot. From this plot select a few more bundles for next year's breeding plot, and save all the rest of the seed for field sowing. Each year have a breeding plot from which to select the best plants. You will soon have sale for your seed from the field crop.

In some places farmers who go to this trouble to improve their own seed organize a seed growers' association; they ask and receive high prices for their seed, and they are as much justified in this as the Holstein breeder is justified in asking considerably more for a pure-bred than for a scrub. Follow the interesting method of plant selection just outlined and you will not find your seed "run out"; you will not have to "change seed".

WONDERFUL GROWTH OF WALNUT.

The great growth that hybrid walnuts make has been spoken of before in these columns. One such tree, a paradox, which has English walnut for the male and Black walnut for the female parent, is growing at Yuba City, Sutter county, and is stated to be the largest walnut tree in California. Recently measurements were taken of this, of which the Sutter County Farmer states:

Yuba City has the distinction of having within its limits the largest walnut tree in California, and in all probability in the world. The tree is on B street, in the yard of Mrs. G. B. Lyman, and attracts the attention of all visitors to our town. It is known as a Paradox walnut, a cross between the northern California black walnut and the English walnut.

Measurements and photographs were recently taken by Peter Bisset of the U. S. Agricultural Department, Washington, D. C. The circumference of the trunk four feet from the ground is fifteen feet four inches, while the greatest spread of branches is one hundred and eight feet. The height was recently obtained by W. F. Peck, the well known civil engineer, who finds the height to the square of the top to be ninety-nine and six-tenths feet. The extreme height to the tip of the topmost limb would be three or four feet more.

In his recent bulletin on walnut cul-

ture, published by the University of California, Prof. Ralph E. Smith says, in referring to Paradox walnut trees: "Most notable is that called the Yuba City tree, which stands in the town of the above name just across the street to the north of the court house. This tree is undoubtedly the largest walnut tree in California, and in all probability, the largest in the world. Its great size is accounted for by its age, as it appears to have been planted at least forty years ago along with several neighboring black walnuts of the northern California type. Anyone interested in walnuts will be well repaid by a visit to Yuba City for the purpose of seeing this grand tree. It is conspicuous long before reaching the town, rearing its enormous head above every other object in the whole vicinity. The tree bears a considerable quantity of nuts every year, but the amount of the crop is insignificant in proportion to the size of the tree."

FIELD NOTES ON INDIAN VALLEY.

Indian Valley is reached from Keddle, on the Western Pacific Railroad, through the Feather River canyon. A good wagon-road leads to Crescent Mills, 10 miles from Keddle. Taylorsville, six miles from Crescent Mills, is the oldest town in the valley. Indian Valley contains about 18,000 acres of tillable land. It is very fertile and has never had a failure of crops, so say the old inhabitants. Alfalfa, timothy, and clover, oats, wheat and potatoes are raised. Beef or dairy cattle are found on every ranch. Some attention is being given to hogs by a few ranchers. A creamery is established at Taylorsville and is given good support from the dairymen and is a paying proposition. Peck and Gott have 50 milk cows, 75 head of young stock, and are giving attention to the raising of mules. Thomas Hay, a new man in the valley, has purchased 347 acres and is giving attention to the raising of Herefords. He has 130 head of cattle. R. R. Parks, with a ranch of 500 acres, will put in a fine herd of pure-bred Jersey cows this fall, and his cream will go to the Taylorsville creamery.

Another ranch visited, the largest in the valley, the owner's name withheld by request, contains 1000 acres (700 under cultivation), devoted to cattle, Percheron horses, timothy, clover, alfalfa, oats, and wheat. This gentleman told me his ranch produced \$14,000 gross per year.

William Johnson is acknowledged to be one of the most progressive of the ranchers of the valley. He was away from home, so I missed seeing him. His ranch contains over 500 acres, 400 tillable. He carries over 200 head of cattle, raises timothy and clover, and last year threshed over 6000 bushels of oats.

Around Greenville, the same conditions prevail. The Perrys are the largest ranchers there, and are now handling more cattle than anyone in the valley.

Altogether, though not nearly up to its possibilities, Indian valley is one of the finest sections we have yet visited, and is growing. J. D. T.

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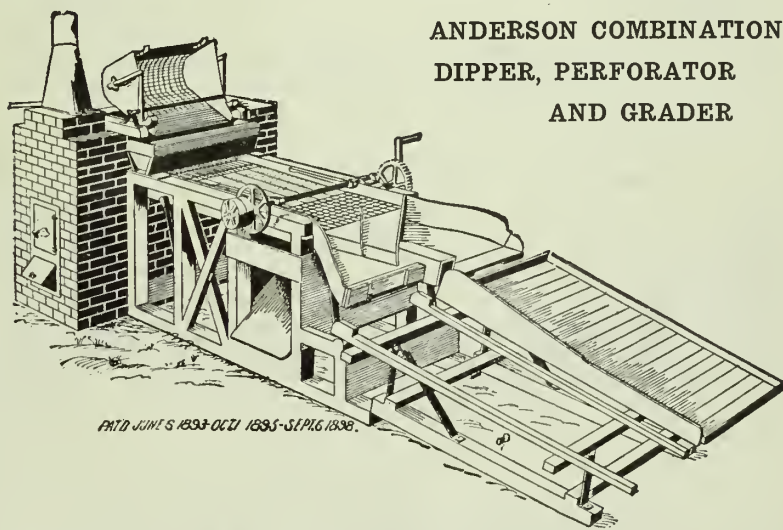
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The Orange in the West Indies.

The Remarkable Wild Orange Boom in Porto Rico—I.

[Written for the PACIFIC RURAL PRESS by
LEWIS R. FREEMAN, Pasadena.]

One encounters the orange in Dominica, Antigua, Trinidad and nearly all the other islands of the lesser Antilles, but the four islands of the Greater Antilles—Cuba, Santo Domingo, Jamaica and Porto Rico—are the only ones that need ever be reckoned with in supplying the American market, of these, Porto Rico is the only one where the citrus industry has made any kind of showing; the only island, in fact, which—for a number of decades at least—the California growers need regard with any concern. Jamaica's available orange land is almost entirely in the hotter parts of the island, as a consequence of which the fruit is inclined to be spongy and of a poor shipping quality. Cuba has occasional visitations of frost—probably the heritage of her parent, Florida—and though some attempts have been made to push the citrus industry systematically at several sections on the north coast, little of a tangible nature has yet been accomplished. There are several places in Santo Domingo where they raise good wild oranges, but this is no criterion of what may be done with the cultivated tree.

The citrus industry of Porto Rico—though backward even there—is incomparably more advanced than in any other part of the West Indies, and for that reason I shall devote most of this, and a succeeding article to a consideration of the history, the possibilities and the limitations of the orange as grown on that island. Here I shall endeavor to trace something of the rise and collapse of the wild orange boom of a decade ago in Porto Rico, the result of a scheme which, originating among some New York brokers, it was believed in certain quarters would sweep the California and Florida industries off the map in a decade. Here is the story as I pieced it together from fragments during a recent visit to Porto Rico—a strange, amusing and hitherto unwritten chapter in the history of the orange.

A year or two after the annexation of Porto Rico a party of prominent New Yorkers were making a coaching trip trip across the island when a breakdown compelled them to spend a night in the country between Caguas and San Juan. Luck dumped them out opposite the plantation of a wealthy old coffee planter of the district, at whose comfortable home place they were all put up for the night. It was here the trouble germinated, if I am correctly informed.

The old planter who, it appears, was something of a bon vivant, had a garden and orchard as well stocked as his cellar, and in addition to regaling his unexpected but doubly-welcome guests on some of the choicest old vintages of Oporto and Jerez, had brought on at the end of the dinner some specially selected oranges, from trees he himself had transplanted, when they were small, from their original habitat in the higher mountains. These, he very truthfully told the strangers, were wild Porto Rican oranges, and, as a matter of fact, they were probably not very different from the very excellent wild oranges one buys through the car windows there today.

But in eating wild fruit it is the "wild" appetite that imparts half the zest, and the New Yorkers had been riding with the wind fanning their faces—and their appetites—all day long; besides an old rubber boot ought to have slid unresistingly down the throat that had been lub-

ricated for an hour and a half with the sixty-year-old port and sherry that figured in the version of the story that was told to me. At any rate, the guests slapped their hosts and each other on the back, and swore by all that was holy that never since the morning stars chanted their first glad paean of praise had fruit of such exquisite flavor been permitted to tickle the human palate.

The next morning—whether from port and sherry, politeness or real love of the fruit was not explained to me—they all reiterated their statements of the night before, and accepted with the profoundest of thanks a hamper of oranges to take with them to San Juan. Several boxes of the fruit came down to them before they left the island and, finally, a carefully packed barrel to take on to the friends at home.

Just to what extent these pioneer oranges were allowed to make an impression on their merits alone I could not learn, and it is rather an important point. The chances are, however, that at the initial presentation in New York the way was carefully prepared for them. In any case, they "caught on," and immediately a good sized section of epicurean New York set up a cry for wild Porto Rican oranges. Thereupon several responsible parties, with true Yankee business instinct, wrote to their friend, the coffee planter, and told him to send on all the good wild oranges he could lay hands on. It was a business proposition, they said, and they would be able to pay him very high prices if all went well.

The old planter was game, and, being from his early training in coffee, thorough and unmethodical, he had the oranges picked under the direction of his own foreman, and brought down the mountains on muleback packed in specially constructed frames of split cane.

These were packed with care at the plantation, transported over the smooth military road to San Juan in bullock carts filled with straw to take up the jar, and, under the eye of the shrewd old planter himself, stowed snugly away in the driest, best-ventilated and coolest hold of the steamer. Subsequently they were just as carefully handled at the New York end of the line, and found to be in prime condition; as a result of which the worthy Porto Rican representative received a check for his two weeks' work that is the wonder of the island to this day.

The rest of the story comes over in the present decade, and is history, inasmuch as anyone on the island can tell it to you; whereas what I have set down so far, as may be inferred, comes strictly from the inside.

In the thickly populated interior of Porto Rico there is not a great number of the people who are able to read and write, in spite of which they have a way of passing around intelligence by word of mouth in a manner, and at a rate, that is truly marvelous. As soon as the word flew around that the Senor Don A—, the coffee planter, had been realizing at the rate of \$5 each in American money for a lot of small boxes and barrels of "chinos"—the local slang name for wild oranges—which his men had gathered in the mountains, everyone in the islands, from San Juan to Ponce, from Mayaguez to Humaco, held his breath for a while, and then, as if the Klondyke had suddenly yawned before him, sprang forth to make his fortune. Men, women and children sought the mountains, these latter day argonauts driving before them whole herds of donkeys, mules, horses and bul-



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locks, each laden with empty sacks, shooks, boxes and barrels. And on horse-back, muleback and bullock-back, and on the backs of men, women and children came down the precious fruit to the seashore, where nothing but the Atlantic stretched between it and \$5 a barrel.

It was one of the greatest harvests on record. They harvested that years' crop by picking it from the trees, and the crops of the year or two immediately preceding by picking them from the ground; while the crops of the next year or two to come found representation in the blossoms and shoots that were knocked off with the rest. The ruling price was too high to allow anything to be missed.

The shipment could have hardly been characterized as a uniform one. This was due principally to the haste in harvesting and the fact that with the \$5-a-barrel story had not been circulated a description of the careful manner in which Senor A— had selected and packed the fruit for his famous shipment. There were oranges to be seen side by side, one hard and green from immaturity, the other mushy and green from over-maturity; and, again, in close juxtaposition, might be seen fruit brown and spongy from scale and brown and brittle from age.

Another defect that would not have escaped the eye of an old packing-house manager was that the fruit was not all of the same shape. This had mostly been brought about up on the mountains in preparing for transit to the beach. Only the most slipshod of the prospective shippers intended to send on their fruit just as they scooped it into the boxes or barrels up among the hills; as a rule it laid too closely at this stage, and most of them wanted to fluff it up a bit and mix it with cocoa husks as packing, so that they wouldn't have to be sacrificing so much of their valuable clean-up for \$5. For this reason it did not greatly matter how many oranges were put into a box at picking, and, as close packing much facilitated transportation, tamping, probably by tramping, was often resorted to, an operation to which the plastic fruit of the crop of the year before lent itself very readily. The result of this, of course,—when it wasn't marmalade—was a stack of multi-colored polygons of every shape known to the dreams of a geometrical lunatic.

All these things didn't hurt the hopes of the exporters a single bit, and in the matter of the misshapen oranges, I was assured on good authority that one genius came forward with a plan to turn them out regularly in that form and sell them to steamship companies at an advanced price—say \$7.50 per barrel—because they could be served in rough weather and not roll off the table. I never learned what became of this man; but if he has not emigrated to the States and obtained it already, he should be the first Porto Rican to be crowned with the honor of Yankee citizenship.

The town of Aguadillo, on the northwest coast, was the envy of the whole island because of the facility with which it was able to get its fruit to tidewater. This lucky city is built on a narrow strip of land between a precipitous mountain-side and the sea. High up on the mountain-side is a very extensive and extremely heavy-bearing grove of wild oranges, from the edge of which at several points natural "chutes" of gravel descend right to the beach. All that was necessary was to box the fruit strongly at the edge of the orange grove, push it over and let it slide down to the bottom and bring up gently against the rocks on the beach. Then all that remained to be done was to take the boxes off to the coastal steamer in lighters and tranship to the New York boat at San Juan.

This saved all the bother and expense of carrying out and repacking, as well as giving cheap water transit all the way to New York. As there was over 1000 feet of drop from the orange grove down to the beach, there was necessarily some loss of fruit through a persistent tendency of the boxes and barrels to proceed in long, graceful hundred-foot leaps instead of sliding smoothly in the gravel chutes. After enough of the boxes had gone to smash to fill all the hollows and crannies in the rocks, the fruit began to find its way back into the chutes again, and by the evening of the first day the whole mountainside was flowing with the juice of the fruit which the New Yorkers on the Evening of Senor A—'s memorable dinner had declared was the rarest that ever tickled the palate of man.

Running down the table of Porto Rican exports to the year of 1901, which as nearly as I can determine, was the season in which the events I have lately detailed occurred, I find the heading "Fruits and Nuts" checked up with a total of but \$105,000. Evidently, neither oranges, nor even fruit in the aggregate, were of sufficient importance to be recorded separately. Of the lump sum, I should say that the greater part was represented by coconuts; grape fruit probably made up a substantial part of the remainder, and pineapples a good share as well. If \$20,000 worth of oranges reached New York that year I would be very much surprised. Most of this fruit went soft and ran through the crates, and this, of course, hurried on the good fruit into like condition.

That was the end of the boom in the Porto Rican wild oranges, but the traffic in that fruit has gone on intermittently ever since. For the last few years there has been an attempt at grading and packing, an innovation which has been rewarded by some increase in price. The latter, however, has never been high since the first year, nor are the prospects good of its ever rising to a point greatly to encourage those engaged in the industry, traffic, or whatever the shipping of wild oranges should be called.

As a matter of fact, the Porto Rican wild orange is about like the western cow pony: a sweet little thing, very good in its place; but of too tough a hide, too little size and too great a lack of general refinement of strain to permit it to compete in exhibition company with any hope of being loaded with blue ribbons. It may have met with a few weeks of popularity among a lot of faddists, but shipping it a couple of thousand miles to the regular market is about equal to sending on sugar cane in the place of sugar. Nor is this slipshod traffic one that does any credit to an island that has what is probably the best equipped sugar "central" in the world, and which is putting miles of tobacco under cover to produce a perfect wrapper. It has already been proved that they can raise far too good oranges by cultivation in Porto Rico for it to be really worth while to ship inferior fruit from the forests.

(To be Concluded.)

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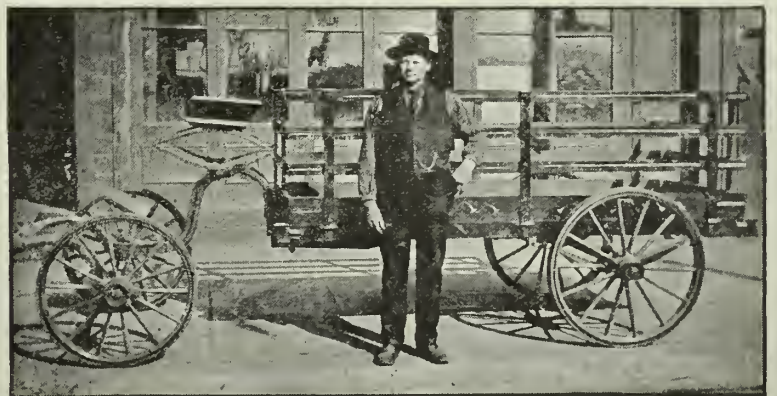
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AGRICULTURAL REVIEW.

With the Fruit Men.

The first train of 32 cars left Imperial valley last week, loaded with cantaloupes for the Eastern markets. It is estimated that 3500 earloads of cantaloupes will be shipped from the Imperial valley, averaging 100 cars per day. The crop is figured at more than 50,000,000 melons and is valued at \$2,500,000. Under cultivation in cantaloupes are 6700 acres in the Imperial valley.

The California Associated Raisin Co. has contracted with three packing firms to handle the 1913 raisin crop. The firms are Malaga Packing Co., North Ontario Packing Co., and the Kings County Raisin Association. The Associated has control of practically the whole crop, which will amount to about 80,000 tons of raisins, and will involve a business of nearly \$10,000,000. It is stated that the Pacific Coast Seeded Raisin Co. will allow the use of its plant by the Associated this season.

The fortieth anniversary of the bringing to the State of the two original navel orange trees by Luther C. Tibbet, from Bahia, Brazil, is to be celebrated at Riverside next September.

The Fresno Republican states that, owing to the abundance of irrigation water in the San Joaquin valley this season, that fruit crops of all kinds are looking better than at this time last season. In the upper part of the valley the paper says that wine grapes will be a normal crop, raisins an average yield, peaches close to normal, apricots below average, and table grapes will be good in quantity and quality.

Prospects for a good crop of oranges around Porterville are said to be growing better as the season advances.

The first carload of precooled berries from the Sebastopol pre-cooling plant left that place last week and was shipped by express to Denver. The new cooling plant at Sebastopol was completed last week, and from now on for the balance of the season, several cars of berries will be sent from it to Eastern market points every day.

Shipments of deciduous fruit from California up to June 16th, for the season, were 450 cars, as against 159 cars this time a year ago. Cherries, apricots, peaches, and plums as well as one-fourth of a car of pears comprised the fruit shipments.

Notes of the Peach Crop.

It is stated that the canneries have bought more ripe peaches already this season than for many years, which may cause a shortage in the amount dried.

The first shipment of ripe peaches from the Suisun valley to Chicago, for the season, was made last week. As the shipment was early, good prices are expected.

The Sutter County Farmer says that prices for peaches in that locality are expected to start at \$30, \$35, and \$37.50 per ton. No sales had yet been made, but buyers were in the field looking over the crop. Regarding grapes, the above named paper says that while no sales have been made, buyers are talking \$16 to \$20 per ton. Contracts are being made at \$10 to \$12 per ton for wine grapes.

The Merced Sun says that canners have been buying up about all the peaches in that section, paying from \$20 to \$22.50 for orange clings, \$25 to \$27.50 for Tuscans, and \$30 for Phillips. Apricots have been contracted for at \$40 per ton. The fruit crop will be good in that section.

The Fresno Republican of June 15th says that canneries in that district are very short of peaches, and as the bulk

of the 1913 crop has been bought, buyers are now in the field for freestones to fill orders, which it says they are short nearly 5000 tons, and that 3000 tons of Lovells will be bought for canning purposes.

The 1913 Barley Crop.

Estimates of the California barley crop this season vary considerably. It has been generally conceded that the yield would be short, and most estimates placed it at 325,000 tons, as against a normal yield of 482,000 tons. On June 1st, the E. Clemens Horst Co. issued a bulletin covering Pacific Coast conditions and crop estimates. In this they place the crop at 425,000 tons, and since then we are told that they have raised the estimate to 450,000 tons. As the estimate last year by this firm was very close, the inclination is to accept their figures. With a 450,000-ton crop and a carry-over of 107,000 tons, which is more than double the usual amount, the State ought to have barley enough to meet the demands of trade. The estimate of the barley crop in Washington, Oregon and Idaho by the Horst company is 300,000 tons, as against an average of about 185,000 tons.

In many parts of California the crop will be very short, but in others the estimated yield is being exceeded by threshing returns. Around Dixon it is stated that one field of 80 acres averaged 33 sacks per acre.

Land Improvement.

A dispatch from Colusa states that in one year the amount of water pumped from the Sacramento river in the vicinity of Colusa has increased from 38,000 gallons a minute to 150,000, making a change from wheat, barley and hay farming to orchards and alfalfa-growing.

At a meeting held last week in Tracy, and attended by more than 200 landowners, a vote of almost five to one was cast in favor of organizing what is to be known as the Tracy Irrigation District, and which will contain 63,000 acres. A system of pumps is proposed to be installed and the water lifted from the river to three different levels. Four pumps will be installed at each of these three points and the water turned into the ditches for distribution over the irrigated sections of the district. The system of pumping the water is approximately the same as that now in use by the Patterson irrigation district, which district secures its irrigation water from the San Joaquin river.

The proposed new irrigation district will comprise 63,000 acres of fine, level and fertile soil. The district will extend from Bethany on the north, through San Joaquin county and as far as Grayson on the south, in Stanislaus county. This will practically bring the Patterson district and the proposed Tracy district together at Grayson.

The Valencia Heights orchard of 150 acres near Porterville, is to be cut up into small tracts and sold. This land has been set out to oranges and deciduous trees during the past three years.

Peter Haaek has purchased 800 acres of land northwest of Alpaugh, which he will develop soon. Pumping plants will be installed and part of the land will be seeded to alfalfa.

A meeting of property-owners on the west side of Fresno county was held recently, at which it was decided to proceed immediately to organize an irrigation district, to cover a strip of land 50 miles long by 25 miles wide, starting northeast of Coalinga and extending each side of the Southern Pacific railway. The

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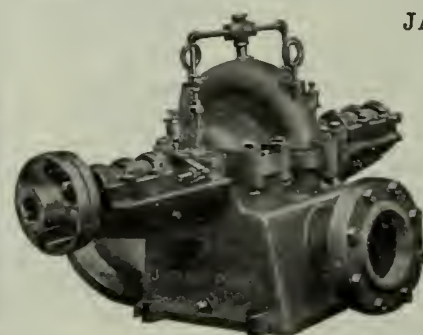
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Prices on Agricultural Products.

A report from the Secretary of Agriculture sent out June 7th states that the average of prices received by producers of the United States for staple crops increased about 4.3% from May 1 to June 1, which compares with an increase of 1.2% in the same period a year ago and an average increase of 3.4% during May of the past five years. On June 1 prices of staple crops averaged about 28% lower than on like date of 1912, 5.1% lower than in 1911, 9.2% lower than 1910, and 17.3% lower than 1909, on like date. The average prices for meat animals decreased about 3.7% from April 15 to May 15, which compares with an increase of 1.5% in the same period a year ago. On May 15 prices of meat animals averaged about 10.7% higher than on like date a year ago, 27.7% higher than two years ago, and 4% lower than three years ago.

Agricultural Notes.

The growers of Turkish tobacco in Fresno county are talking of forming a selling organization, planned along the lines of the Associated Raisin Company.

State Insectarian Smith has received from Massachusetts a green beetle, a native of Italy, which he will breed in large quantity for distribution in citrus orchards for the purpose of destroying caterpillars.

Cutworms are reported to be doing damage in the San Joaquin county vineyards. The arsenic-molasses-bran mixture is recommended as the most effective check for these worms.

A dispatch from Dinuba states that the Melon Growers' Association of that place has contracted with Mrs. C. B. Driver to act as selling agent for this season's crop of cantaloupes. The crop will be smaller than usual, shipping will commence in about two weeks, and prices promise to be above the average.

That the lake bottom lands will make a yield this year of from 20 to 28 sacks to the acre is the statement made by growers, says the Visalia Delta. There are over 10,000 acres of lake bottom lands that have been put out to grain this year and the crop to be harvested will be larger than ever.

Potatoes are cheap in Missouri. On Monday last, carloads of last year's potatoes sold at Kansas City for 10 cents per bushel. The sale was held to clean up the hold-over crop.

The work of getting out the list of prizes for best exhibits at the Eldorado County Bartlett Pear Show, has been completed. At the exhibition of fruits to be held from August 28th to 30th, at Placerville, prizes amounting to \$1000 will be given. Most of this money will be given on pears of the different varieties, but peaches and prunes will also come in for some of the money, and growers from all parts of the State are invited to enter fruit in competition.

Changes at the University.

Regents of the University of California last week elected Prof. Gordon H. True, former director of the Nevada Experiment Station, as professor of animal industry, to do work at both the farm and the university. Dr. J. F. Barrett, of the University of Illinois, was confirmed as plant pathologist at the citrus experiment station, and J. W. Nelson as assistant professor of soil technology. Last week Dr. J. W. Gilmore arrived from Hawaii to join the University of California as professor of agronomy. Dr. Gilmore resigned the presidency of the College of Hawaii to come to California.

Live Stock and Dairy Notes.

At the Portland Union Stock Yards last week, receipts of stock were light and prices lower than the previous week. Best steers brought only \$8, and average sales were about \$7.25; cows averaged \$6.75, calves \$8.50, hogs highest \$8, and averaged \$8.20, lambs \$6.50, wethers \$5.25, ewes \$5.

The local Forest Supervisor has received word from the Secretary of the Interior to permit all the stock into the Sierra reserve as is possible.

The Shire Horse Society of England has decided to offer ten gold challenge cups, valued at \$250 each. Two of these cups will be annually awarded at representative American shows each year for five years. The offer for 1913 will be made through the Chicago International Live Stock Show, and the first cup will be awarded best registered Shire stallion and the second cup to the best registered Shire mare. Horses entered for these cups must be registered or eligible for registration in the American Shire stud-book.

So many cattle are being shipped out of the Southern States to be used as stockers in the Middle West, that the U. S. Department of Agriculture sends out press notices advising against the practice. The high prices paid for the stock means that the Southern people are selling and next year that territory will be very short of all kinds of cattle.

RANCHING IN HONEY LAKE VALLEY.

Honey Lake valley has an area of 380,000 acres, nearly all of which lies in the southeastern part of Lassen county, California. A small portion of its lower end extending into Washoe county, Nevada. Although settlers have been in here for 50 years, it is practically a new country, thousands of acres of its productive soil being yet untouched. The reason for this is that it was nearly shut off from the outside world by the Sierra Nevada mountains, which form a wall between it and the lower valleys to the south and west. Those valleys are nearly at sea-level, while the floor of Honey Lake valley is 3940 feet above. Conditions have recently changed. Two railroads now make access to the valley easy. The new Southern Pacific has reached Susanville, the county seat, at the upper end of the valley, and is being pushed rapidly forward toward the west. Reasonable freight and passenger rates make it possible to ship in and out, and to come and go without loss of time, and so it has come about that Honey Lake valley is just at this moment on the verge of a new era of development and prosperity.

The climate of Honey Lake valley is not as warm as that of the coast valleys, nor as severe as that of the Eastern or Northern States. There is winter in the valley from the first of December to the last of February, and the thermometer drops below zero, but extremely cold weather usually lasts only from 10 to 15 days. There is little or no rain in summer and fall, and never any fog. The summer days grow hot, but not as uncomfortable as in the lower valleys.

Every variety of soil can be found in the valley, from adobe to sand, from fine clay to peat, thus permitting the perfect development of every tree or plant known to this climate.

Alfalfa is the principal crop. It grows luxuriantly on the sand where the sagebrush flourishes. It grows on the adobe; it grows anywhere it is planted. Water has to be supplied to the sand lands, but we saw fields of the finest kind of alfalfa on adobe land that had not had a drop of water, except the rains, for seven years. And from the alfalfa is produced a su-

perior quality of seed. From \$40 to \$100 worth of seed per acre is not uncommonly received for the seed crops. Only two crops are usually cut, when used for hay. The yield runs from five to six tons, and the feeding value is very high. H. H. Holmes, the alfalfa seed king, whose ranch is near Standish, on adobe land that had not been watered for four years, produced 1000 lb. of seed per acre, last year and was paid 1 1/4 cents above the market price. He said: "If my land had cost me \$600 per acre, it would pay 8% interest on the investment."

But alfalfa is not all. Wheat yields from 40 to 60 bushels to the acre; potatoes have brought, when prices were high, as much as \$200 per acre; while oats, barley, and rye, timothy and clover all do finely.

As to fruits, cherries grow exceptionally well, as do strawberries, peaches, plums, apricots, and all the smaller fruits. B. F. Gibson, who owns 3000 acres, and is a progressive rancher of the right type, has produced as fine melons as can be grown anywhere, and has Concord and other grapes on his place which he declares are the equal of any ever grown along the shores of Lake Erie. And the greatest of all the fruits—apples—grow to perfection in this magnificent country.

As cattle was one of the first considerations in this country, they should have been mentioned first, perhaps, but like all the other conditions, the status of cattle is changing. The ranges are gone or are going. The ranchers are slow to meet the changes, but are beginning to realize that fewer cattle of superior quality, well fed on the alfalfa possible for them to produce, brings as good if not better returns; so some attention is already being given to pure-bred stock. Some good and a few pure-bred bulls have been brought in, and the tendency is upward all along the line. Not as much attention is given to dairying as there should be. There were three creameries in the valley, but only one is running now.

Careful attention is given to the breeding of fine horses and mules, there being a number of fine pure-bred registered stallions. J. H. Elledge's fine imported English Shire, and B. F. Gibson's Percheron are notable examples. Horses bring from \$175 to \$200 and even more. Mr. Elledge has a Spanish jack and the mules in the corral gave proof of his excellence. We never saw finer ones—and the gentlest creatures possible.

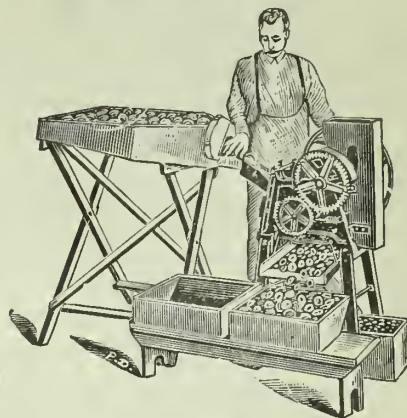
One goes from Susanville down the roads toward Honey Lake with its 64,000 acres of water, and everywhere there are to be seen green patches of alfalfa and thousands and thousands of acres of sagebrush which wants only the grubbing hoe, the plow and the water, when they too will be fields of waving grain.

We wish we had time to speak of the big ranches like the Ramsey ranch, where a thousand acres of alfalfa is growing; the Lawson's, the Gibson's, the Mapes', and all the others; but what we must say, and which is more important, is that men are making a fine living here on 40 acres and doing nothing yet but raising alfalfa or alfalfa seed. The small farmer has a chance here. That is the important thing, and if there is one last word to add, it is that an experiment station should be established, that all the possibilities of this great valley be brought to the attention of those here

and those who would come if they only knew.

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APRICOTS, 1 ton per hour.
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Also a word to you who are planting deciduous trees. Last season we sold over a million Perforated protectors to deciduous planters, and they find it was money well spent. You know that rabbits, hot sun, sand storms, raking of bark in cultivation, etc., always causes a loss that will many times more than pay for the Perforated protectors to protect your whole planting. Let us sell you Perforated protectors. We have the only Perforated ones made. Write for sample and price.

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Mechanical vs. Hand Labor on the Dairy.

[Written for the PACIFIC RURAL PRESS by
J. C. LOOMIS.]

As a large proportion of the dairy industry of the State is located in the large interior valleys, and as almost always these valleys are very warm during the summer months, the labor problem is quite often a serious one.

This is more noticeable during the summer months, also on account of the haying season and the large amount of development work in other than land improvement which makes a large demand for unskilled workers.

To call a milker an unskilled workman is not perhaps classifying him properly, as it certainly is a trade, if done properly, but at any rate the milker often prefers doing other kinds of work during the hot weather months than to set in a warm barn, between two equally as warm animals, for several hours a day milking.

On dairies where one string or less is milked, the dairyman can often do his own milking, but it is hard work and is very confining, and besides it often diverts one's time from managing the business in other respects.

We may say, then, that the milking question is one of the big drawbacks to dairying, and to solve it means to put the industry not only on a much sounder footing, but also a more pleasant one.

Along this line, we have had a great many dairymen ask, during the past few months, about the milking machine, and we will give, in the following, all that we have been able to collect from practical dairymen who have given the machines a thorough try-out for one year or more.

Readers will perhaps remember having read in this journal last fall an account of past experience in the State with milking machines, but for those not familiar with the subject it might be well to state that some six or seven years ago there was what might be called a boom in the mechanical milker. At that time it was thought they would revolutionize the dairy industry, and they were installed in many dairies all over California.

That they were mechanically wrong is the impression held by many, who after a few months trial discarded them, but it would seem that the handling of them had a good deal to do with this idea, as one man whom the writer mentioned last fall had used them continuously for over five years.

Most dairymen who had used them discarded them, believing that they dried the cows up, and in many cases spoiled them as milkers. About two years ago there was a new flurry in the machines, and this time they seemed to have made good, whether due to more careful handling or to new devices, we do not know, but consider that the improved machines had much to do with it.

This later introduction was taken hold of mostly by dairymen in our newer sections, who were not prejudiced against the machines through knowing the past experience in this State, for it is true that the worst prospect a machine salesman has is he who never has used them, but has heard through some neighbor that they "will spoil your cows."

As before stated, however, the later models were introduced in newer sections, one of the first of these being near Modesto in Stanislaus county. Anyone familiar with conditions in that locality knows that today the milking machine has come into its own there, and, with one or two exceptions, all those who are using them, and there are a great many used, are not only continuing to use them, but also always ready to highly recommend their use to others.

As a great many of those in use are on dairies where only registered stock is kept, which are valued at fancy prices, it would seem that the machines are not hurting the cows in any way, for surely no breeder would spoil a cow for the sake of indulging in some hobby.

While in this section most of those in use are in dairies which maintain from 20 cows upward, and therefore greatly cheapen the milking costs,

the man with a smaller number may also be benefited, as can be seen from one man's experience in the Sacramento valley. This is George M. Whitmore, whose dairy is located about three miles northwest of Corning.

Mr. Whitmore was for a great many years a tradesman, and knew absolutely nothing about farming, but as his health was poor, five years ago he purchased 60 acres of land which is his present home. The first two years were spent in preparing and planting alfalfa, and for some time this was sold as hay, but it was thought more could be realized from feeding it to dairy cows, so a few were purchased. Since that time all the heifers have been raised, until at present he is milking ten cows.

A year ago he found that his milking was not only a drudgery, but also kept him from doing as much work in the fields as he wanted to, so he got some literature on milking machines. Having formerly been a machinist, he considered them all right mechanically, so ordered two on 30 days trial. These cost him close to \$100 laid down at Corning, the Hinman milker having been selected.

A $1\frac{1}{2}$ horse-power gasoline engine was purchased for power, which cost \$55. As he installed them himself, the other costs were very small.

He states that no trouble was experienced in getting the cows accustomed to the machines, and from the first they did satisfactory work, although he had never seen one in operation before. Now, after nearly a year's operation, he has the following to say:

"Last year we were milking the same number as we are now and feeding straight alfalfa the same as at present. Some time before their use we sold our fat to a local creamery, but they went out of business, so we began shipping to the University Farm at Davis.

"When we were milking by hand our test was very low, in fact, with our class of stock it was hardly paying to dairy, but after using the machines awhile the quantity and quality were both greatly increased, until now a very good average test and flow is obtained. As all other conditions except the mode of milking were the same, I naturally give the machines a great deal of the credit.

"As to whether it hurts the cows, I have never had a cow harmed in any way by the machines, but am told that many hand milkers often do spoil cows.

"While milking nine cows, I used to milk and separate with the two machines in 45 minutes, but I believe it is better to allow a little longer, so now I allow an hour for that work.

The cost of operating is so small it is hardly noticeable, as a gallon of distillate runs the machines a week, and there is no other expense, except test cups, which are a very small factor."

While most users strip behind the machines, Mr. Whitmore does not, and has this to say on the subject:

At first I, like most others, was afraid of the results, so was very careful to see that each cow was milked dry, and, in fact, I still am.

"When I see that the cow is about milked, I thoroughly knead the udder with my hands, and by so doing find that the machine does its work thoroughly, and although I have repeatedly tried to strip behind the machine, I have never been able to get any more milk.

"As to whether I like them or not, you may say that if it were not for the machines I would not stay in the dairy business, and although I am only milking a few now, I expect to keep more all the time and the machines will always be used in the place of hand milkers."

In concluding, it should be said that one favorable point with the machines is that after a cow becomes accustomed to the machine she will give down just as much to one operator as she will to another so that any loss in this manner is overcome.

As to their simplicity, once the principle is understood they do not require any great mechan-

ical ingenuity to run them and are much simpler than most other farm machinery such as mowers, binders, etc.

Last, but not least of the good things to be said of them is the more sanitary way they do their work than a hand milker, some creamery men claiming that fat from machine milked dairies is of a much better quality.

METHODS OF MANURE DISPOSAL.

To the Editor: I would be glad to have you give me such information as you can regarding the construction of an underground manure pit for liquid and solid manure. I would also like to have you advise me whether or not there is any advantage in keeping the two in one pit, or whether by keeping the solid manure under a shed and out of the way, it will be worth as much as a fertilizer as if kept in the same pit with the liquid. I intend to use the liquid manure when I irrigate; that is, to pump same into the ditch and run it on the land with the water, spreading the solid with a manure spreader in the fall. Do you consider this method of spreading the liquid as valuable as spreading it with a sprinkling ear on the land? My idea is to save all the hauling and unnecessary labor attached thereto, by spreading it in this manner. Also advise me the best method you know of to load the manure spreader from the pit with the solid manure. I am desirous of getting all the information I can concerning the above, and would therefore be pleased to receive any suggestion you may have, or the experience of others, in the construction of such a vat, its cost, etc.—C. G. K., Stanislaus county.

A manure pit requires no great specifications, as it is nothing more than a hole lined with some material to make it impervious, that is, concrete. The size of the pit will depend upon the number of cows you have. One of Brown & Aaron's, west of Yuba City, is operated about as you intend to run yours, and gives great satisfaction. It is 8 by 8 by 8 feet in size. It is off from the milking stable about 30 feet, and all the stable washings run into it, both solids and all. The pit is concrete lined, but not covered. When it gets pretty full a pump, which is operated by electricity, is started going and sends the material over to the irrigating ditch, the water being conveyed to those checks of alfalfa which appear to need the fertilization. The system gives good satisfaction.

Possibly the distribution is not made as evenly as by a manure spreader or a tank, but the saving of labor would more than offset loss. Likewise the soil is quite heavy and very little, if any, water would be lost by seepage. In a very light soil a good deal of water and the fertility in it might possibly be lost in seepage from the ditches, which possibly would make the extra labor of using a manure spreader and tank wagon profitable. However, we doubt it.

There is, of course, a great deal of water used in washing the manure from stable to pit, and this amount of water makes it possible for the pump to handle the solid matter in the pit. As we remember, a long-handled stirrer is used when the pump is going to mix this solid matter with the water so that the pump would remove all. This makes the manure spreader unnecessary.

If the solid matter is to be removed from the barn before the liquid is washed down to the pit, it can be removed to the fields at once. Manure carriers can be used to take it out to the manure spreader, or it can be wheeled up an inclined path and dumped into a wagon, or to an elevated retainer, from which the manure spreader can be loaded with little effort. By that method the flies have not the material handy long enough to breed, which is the case where the manure is kept until the fall. If the manure is evenly and thinly distributed over the fields in summer it will dry out so quickly that no great amount of fertility will be lost and it will not injure vegetation. If it is distributed in the irrigation water, less fertility will be lost, if we figure it out properly, than by any other way, and that looks just about the best proposition possible.

Any expert concrete worker will give the right mixture for the pit lining. About one to six is a good mixture for the concrete, being faced, as soon as the forms can be taken away, with a

plaster of about one to two. If you have the solids go in the pit with the liquid manure, as in the case we described above, you will have to leave the top open so that the mixture can be stirred when the pump is going, or have a removable cover. Still, when a large amount of

water is used the odor and loss of nitrogen is much less than with a strong mixture.

Finally, we second the request for experiences of other dairymen. The most progress can be made when the man who has a good system of operating his place shares his method with others.

Better Hog Culture and Less Disease.

[Written for the PACIFIC RURAL PRESS by
J. C. LOOMIS.]

Hog cholera was considered at one time in this State as a strictly Eastern disease, but every year one continues to hear more of it, and to find a larger number of hog-growers losing large numbers each season, with the result that more attention is being directed toward preventives.

While it is true that hog cholera serum is highly recommended by all who have given the subject close study, the opinion seems to be unanimous that the more sanitary conditions are in the hogs' quarters, the less disease will be experienced.

To illustrate, a farmer, in speaking of cholera recently, said: "I have raised and still am raising a great many stock hogs for the market, but so far have never had any disease, although I have never vaccinated against it.

"One particular instance was when I was raising and fattening about 300 in the lower San Joaquin valley. I was very careful to keep everything clean in their quarters and, although I had wallows for them, I always had long wooden troughs full of good fresh water for drinking purposes. My neighbors also raised hogs, but did not furnish any drinking water other than that in stagnant ponds. I found by having fresh water that they would climb out of the muddy water and walk some distance to the fresh water for their drink, and I consider this point very essential.

"Shortly after starting in that district, a neighbor who had some 300 or 400 hogs came over and told me that he had the cholera among his hogs and that I had better move before it spread. As I had no place to move into, I told him I would stay, as I wasn't much afraid, anyway.

"To make a long story short, though, he and others lost all of theirs, but I carried mine through without any trouble, and I have always felt that my watering system was what saved me."

While visiting the ranch of the J. S. Gibson Company near Williams, the writer had an opportunity of seeing the methods used to raise large numbers of hogs in a district where hog cholera has been one of the more common obstacles to hog-raising. At the time of our visit there were about 300 pigs which were being raised for the market. They varied in age from 6 weeks to 10 weeks, and had just been vaccinated, this being the custom every year. They are fed on skim-milk and middlings and allowed an alfalfa pasture to run on. A large feeding shed was built with shingled roof and open sides. A board floor was laid, but the owners believe that a cement floor would be much better. The floor space is divided into different sections by a regular fence about four feet high, with gates. A square bottom board trough is used for feeding. This is lined inside with galvanized iron and divided by a board running through the center and about 12 inches high. This does not go quite to the bottom of the trough, the idea being to keep the hogs' feet out of the trough. A similar trough is used for the larger hogs, only that it is made a little larger. The advantage of having the roof and floor is that during wet weather the feeding can be done under sanitary conditions and the mud scraped up every day; also that with the gates the feed can all be distributed before the pigs are allowed into the feeding enclosure, and in this way they have an equal chance for their share.

The inside and outside of these buildings had just been thoroughly whitewashed, and we were told that they were treated in a similar manner whenever it became necessary.

The housing for the brood sows is equally as sanitary and is also under one roof.

The floor plan of this building is quite different from most and has many good features. It is wide enough for a pen on each side, and has a good wide runway through the center which is perhaps 10 or 12 feet wide. This runway or feeding space runs the entire length of the barn. The floor is made of concrete with a slight drain to one side, where a gutter is used to carry off liquid matter. Each pen has a gate hinged from the top, and a smaller sliding gate at the other front side, the latter being used to let the pigs out into the center for their feed. The troughs before mentioned are set in the runway, and by having the two-sized openings, the small pigs can be let out first and fed separately, thereby insuring against the underfeeding of the pigs so apt to happen when they are turned into the feeding pen with the sows.

One might think that a couple hundred small pigs would have a hard time finding their own pen after feeding, but it seems this is not true, as they will all find their own mother.

Doors also lead from each pen to outside pens, where in good weather they are allowed to exercise.

The feed-mixing is done at one end of the runway under the same roof, but partitioned off by a gate. Having a concrete floor, it is easily hosed off with water, and fresh water is piped to all of the pens for drinking purposes.

All of the woodwork and floors are given a thorough coating of whitewash whenever they get a little dirty, but as there are no dirt-floors to form mud, and as the roof protects it from winter rains, it is not very hard to keep clean.

Some may consider the erection of such buildings unnecessary, but that it pays on this place is seen from the fact that where others lose several hundred dollars annually from the cholera, Mr. Gibson is able to turn off a good-sized bunch without much fear of disease, and while vaccinating as he does may be one reason for this, as he told the writer: "There isn't much chance of disease if one has sanitary quarters and provides good, pure water and feed. This I consider one of the chief preventives, as an animal of any kind with dirty surroundings is not only subject to diseases, but will not make nearly as rapid a growth."

HOGS AND FLEAS.

[Some time ago there was quite a little said in these columns about hogs and fleas. In the communication given below, things are turned about so that hogs, instead of causing fleas, were actually used as flea exterminators, and were better hogs on that account. Such accounts are always very valuable.—EDITOR.]

To the Editor: Some fourteen years ago I moved to this ranch. I found life a perfect burden on account of fleas, although there wasn't a hog on the place. Later I bought hogs, and the lice were so bad that I lost a great many of my hogs, although I tried various dips. I finally tried crude oil for the vermin on the hogs. Dug a hole about eight feet long, two or three feet deep, and about as wide. Let it run half full of water, then poured ten or fifteen gallons of crude oil on the water. As soon as the hogs have once been driven into such a dip they need no urging. The oil seems to cover every hair, and now if they see a vessel with oil in it they immediately tip it over and commence to wallow in it on the ground. After dipping, I let the hogs remain for a few hours in the stables, and I haven't seen

a flea since I began using the crude oil. I believe, also, that the oil is a preventive of cholera, as I have had my hogs in perfect health since I began its use for vermin.

D. W. S.

Idlewild Farm, California.

FEEDING HOGS FROM SACKS.

[Written to the PACIFIC RURAL PRESS by
CHAS. GOODMAN, Williams.]

[In the issue of June 14, Mr. Goodman, who answers many of our queries on hog matters and gives us lots of sound, practical information on the subject, referred to a method of feeding hogs from sacks. It occurred to us that many of our readers would not be familiar with this, and therefore we wrote, asking for a description of the methods used on the place. In return, we received the following very valuable statement.—EDITOR.]

The best sack for feeding alfalfa hay or unthreshed grain that we know anything of, is such as is used by the Colorado Experiment Station. This is a double sack three feet high with a diameter of three feet at the top and one foot at the bottom. It is made of 1x3 or 1x4-inch lumber and spaced sufficient to let the hog reach in and pull out the feed. It can be made long enough to accommodate any number of hogs that one may have or it can be made small, say about four feet long, which will make it very convenient to move about. These sacks should have a trough, about one foot wide and five or six inches deep, under both sides to catch the waste.

In feeding alfalfa hay, the hogs will not clean up the stems well, but seem to prefer the leaves; in fact, the greater part of the food value of alfalfa hay is in the leaves. If the straw that the hogs reject is thrown to horses or cattle that run on dry pasture, they will clean it all up nicely.

The hog is an extravagant fellow, if he has his way, and feeders should try to prevent as much waste as possible. We let the chickens run with the hogs, and they keep the grain waste fairly well looked after. Some one might say that this will not do, as the hogs would eat the chickens. Right here we will say that no well-bred or decently fed hog will ever have any desire to eat chickens.

JERSEYS ON THE GLENN RANCH

[By J. C. LOOMIS.]

So much has been written and said of the Dr. Glenn ranch at Jacinto, Glenn county, that almost everyone familiar with California's history knows of it, as it was at one time one of the largest grain ranches in the State and also produced the first cultivated grain, not only in California, but in the West. Perhaps it is due to its reputation as a grain ranch that it is not better known as a breeding farm, for Charles Leonard has been raising pure-bred Jerseys on the ranch for over 20 years. The foundation was purchased from Peter Shields, of Sacramento, and continually built up by the use of fine pure-bred bulls, the object being to keep nothing but pure-bred stock. All stock was registered as soon as eligible until Mr. Leonard, while on a trip to Europe, left them in others' care, with the result that no dates were kept of the offspring and, consequently they could not be registered. These unregistered Jerseys were afterward sold and a good many added at the George A. Smith sale at Corcoran. At that time several cows were purchased which were bred to the two noted bulls, Gertie's Son and Gertie's Lad, and as a result some fine young individuals are now on the ranch.

The herd bull is Melia's Fox, containing blood of Imp. Sergeant Fox, champion Flying Fox, Golden Lad, Golden Fern, and Marquise Melia. He was a prize-winner at the Sacramento State Fair one year and is sire to many fine young heifers on the ranch at present.

A good many of the mature cows have been officially tested in the past and easily made the Register of Merit. As this herd has always been built up regardless of the cost, and as they will be greatly increased in numbers in the future, California should be greatly benefited by its presence.

Veterinary Questions and Answers.

[Answered by Dr. EDWARD J. CRELLY, San Francisco Veterinary College.]

To the Editor: We have a two-year-old heifer, which, two weeks before she was due to freshen, had a large udder slightly caked. Upon pressing the teat a discharge of blood issues from each teat. I would like your advice as to the cause and also treatment for same. We know that it is not caused from a bruise. Blacks, Yolo county. DAIRYMAN.

This is infectious mastitis. It may be due to a bruise or blow or infection introduced through the milk duct. The first is most likely. Apply camphorated oil externally and inject into the affected udder some hydrogen dioxide [peroxide of hydrogen.—Editor.]. After ten minutes, milk out again. Repeat once daily. The Western Laboratories, Oakland, manufacture a vaccine which works wonders in such cases.

FLY REPELLANT.

To the Editor: Can you tell me what to put on our cow to prevent flies from worrying her? She is drying up, and the few flies of the first of the season have developed into a swarm. It is the horned variety, and when we kill one on her it is filled with blood. Hughson. A. C. B.

Nitro benzine, 5 ounces.
Carbolic acid, 3 ounces.
Kerosene oil, 3 ounces.
Sol. formaldehyde, 1 ounce.
Fish oil, 1½ quarts.

Mix, and just touch the hair with the mixture.

SCOURS.

To the Editor: Will you kindly recommend a treatment for a horse troubled with scours. He is on dry feed, but the trouble continues. R. G. R.
Fair Oaks.

Fix the teeth. Give very little water mornings and while worked, but give plenty at night. Feed dry rolled oats, oat hay, one handful of whole flaxseed at night, and the following powder:

Bismuth subgalate, 4 ounces.
Iron sulphate, dessicated, 8 ounces.
Bismuth subnitrate, 8 ounces.

Mix, and give a heaping teaspoonful each morning.

RICKETS.

To the Editor: I have some shoats about four months old that have been

sick for about three weeks. Their complaint has been pronounced by different ones as cholera, kidney worms, and rickets. They seem to have trouble in controlling their hind legs first and then lose control of their hind parts and will sit at the trough to eat after they cannot stand on their hind feet. Their appetite appears to be good, as they are ready to eat three times a day. Their feed consists almost entirely of sour milk. If you can tell me what their complaint is and suggest a remedy, I will be very thankful. J. G. W.

Salida.

Change their feed entirely, and if possible change their pens. Give plenty of salt and the following prescription:

Soda sulphite, 8 ounces.
Iron carbonate, 4 ounces.
Pulv. Columba bark, 2 ounces.

Mix, and give a teaspoonful twice daily.

TUBERCULOSIS OR WIRE INJURY.

To the Editor: I would like to ask a question about a Jersey cow that has been ailing for some time. She had her second calf last November and will be fresh early in October. About two weeks ago she began breathing very rapidly, just as though she had been run and exhausted. She breathes that way all the time; in the mornings, too. She has been losing flesh slowly ever since we first noticed her breathing. She has no bowel trouble and eats heartily and digests her food. She failed over half in her milk and does not gain any back, but for taste and color the milk is as good as ever. She has no fever and her heart seems all right. We had a veterinary and he was not sure of the exact ailment, so we would be very glad to hear from you in regard to what you think the trouble is and what is best to do for her. She is on good pasture. Porterville. J. W.

Have the veterinarian make the tuberculosis test. I suspect bovine tuberculosis or a piece of wire piercing through the stomach, diaphragm and into the lung.



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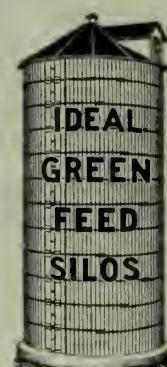
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All registered cows and heifers are bred to our herd bulls, which combine the best blood of the Holstein breed. Each of these bulls have been winners in the show ring, and their calves are the most promising that we have ever seen. This is the only way that you can get heifers from these sires, as they are not for sale at any price, all being kept until they have been officially tested. In many instances the calves dropped from this service will be worth the purchase price of the cow, and we will pay half the purchase price for each heifer calf. Buy these and start right.

The eighty grade Holstein heifers are by registered sires, and have been selected from choice cows for a high-grade dairy herd, and on account of the dry season are offered for sale. Fifty of these, from 18 months to 2 years, are bred to a registered bull, and the balance are yearlings and not bred. This is a rare opportunity to get a high-class dairy at a reasonable price.

Also have for sale fifty young registered bulls from 3 to 14 months, many of which are from A. R. O. dams with exceptionally good records.

Come and look them over or write for further information and price.

A. W. MORRIS & SONS, Woodland, Cal.

We Have For Sale After
June 15th

20 Registered Cows
15 Registered Heifers

80 Grade Heifers



Aralia de Kol (12½ Years)
Milk in one year, 28,090 pounds.
First cow to exceed 28,000 pounds.

POTATOES TO FATTEN PIGS.

An experiment to test the feeding value of raw or steamed potatoes as supplementary feed with a grain ration, has been carried on by Robt. Withycomb at the Eastern Oregon Experiment Station, with interesting results, which will be of special value this year on account of the superabundant potato crop.

The hogs in the experiment were divided into eight lots and records of the different feed ration given each and the proportionate gain made were kept carefully. Each hog in lots 1 and 2 ate an average of 170.18 pounds of barley and 509.53 pounds of raw potatoes, making a gain in weight of 60.70 pounds. Those in lots 3 and 4 ate 110.30 pounds of barley and 663.75 pounds steamed potatoes, and made a gain of 70.60 pounds while those in lots 5 and 6 ate 188.60 pounds barley and 564.80 pounds steamed potatoes and made a gain of 78.10 pounds. Lots 7 and 8 ate 300.10 pounds barley without potatoes and made a gain of 69.5 pounds.

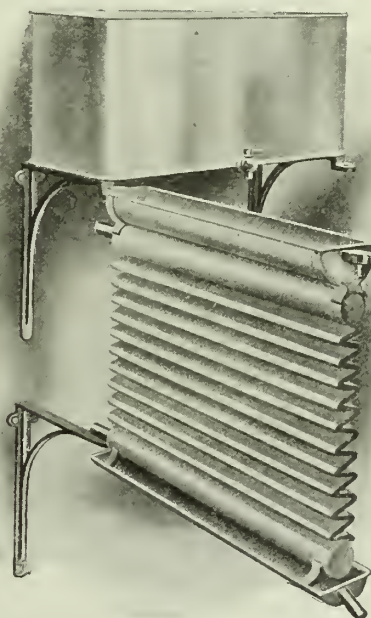
The last two lots, fed barley alone, were used as a check on the others to show more definitely the proportionate value of the potatoes. At the present market value of 7c a pound live weight, the hogs fed barley made a \$4.87 gain, which makes the barley feeding value \$1.62 to the hundred.

Lots 1 and 2 fed barley and raw potatoes at the rate of 3 pounds of potatoes to a pound of barley, made a \$4.25 gain, which gives the raw potatoes a feeding value of 29c to the hundred. Lots 3 and 4 receiving 6 times as much steamed potatoes as barley, made a \$4.94 gain, giving the steamed potatoes a feeding value of 47c to the hundred. Lots 5 and 6 fed three times as much steamed potatoes as barley, made a \$5.47 gain making the feeding value of the potatoes 42c to the hundred.

It is noticeable that those fed six times as much potatoes as grain did not make quite the gain made by the other, but it required 85.25 pounds less barley to make this gain, so the difference in feeding value is accounted for.

It is also noteworthy that the steam potatoes are worth 13c more to the hundred than raw for feeding, as shown in the comparison of the gains of animals fed the 3 to 1 ration.

If these experiments were made in California it is safe to say that the alfalfa which would have been fed with the potatoes would have made the potatoes even more valuable than they proved in Oregon.



Better Cream— More Money

A PERFECTION COOLER

will prevent your cream from souring and improve its flavor. Made of copper, heavily tinned, and will not rust. Has more cooling surface than any other cooler of same dimensions. No ice necessary. Several sizes, also other styles. Furnished complete as shown.

If you want the best, buy a Perfection.

Pacific Dairy Machinery Co.

DAIRY OUTFITTERS

56 and 58 Clay Street,
San Francisco.

Swineland
Tamworth
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Berkshire Swine

2 Gold Medals
2 Silver Medals
4 First Premiums
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California State Fair

We are booking orders
for Spring pigs for May and June
delivery.

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Box 57, Yuba City, Cal.

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a Concrete Silo with all modern improvements. As permanent as the ground upon which it stands. Especially constructed to meet the requirements of the Pacific Coast States.
CONTINUOUS OPEN DOOR FRONT
Perfect System of Ventilation and Drainage.
The most economical silo to build and to use. Write for "Catalog C" to
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P. O. Box 908. Sacramento, Cal.

SHEEP.

CHAS. KIMBLE, Breeder and Importer of Rambouillets. Hanford, Cal.



All Progressive Dairymen

SHOULD READ THE FOLLOWING.

I have used the Hinman Milking Machine eight months. It has proved very satisfactory and is a great labor saver.

The cows take to it more kindly than to hand milking. In no instance whatever have we been able to detect the slightest injury to a cow, nor have we noted any falling off of milk or drying up due to its use.

In the hands of a competent man the machine is certainly a great help.

CARROLL FOWLER,

May 1, 1913. Ceres, Cal.

California and Oregon Agents:

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HOWARD CATTLE CO.

BREEDERS AND IMPORTERS
SHROPSHIRE SHEEP
SHORTHORN CATTLE
BERKSHIRE HOGS

320 Sharon Bldg., San Francisco.

Developing the Heifer.

The saying, "As the twig is bent, so the tree inclines," applies to dairying as much as to anything else, with special reference to the raising of the heifer. No matter what the breeding of a heifer calf may be, she can be developed to full capacity by proper handling, made into just a common cow as compared with others of equal possibilities, or left away below standard.

A dairyman from Lemoore wrote to Hoard's Dairyman for advice on raising heifers for California condition, and although a paper published in the East is likely to look at California conditions from a rather queer angle, the authoritative position that Hoard's Dairyman holds in dairying cannot help but make the reply of value. It runs:

There are a great many factors that have an influence upon the value of a cow as a producer before she reaches maturity, as well as during the time she is actually producing milk. The breeding for generations back of the individual, for example, is an all-important factor in determining her value as a dairy cow. Granting that the animal is so bred as to insure a pronounced dairy temperament, the factor of development should receive attention if maximum production is to be expected.

It is a well known fact that capacity is one of the essentials of a good dairy cow, and in order to develop this characteristic the calf must be kept growing from the very beginning. A stunted calf will never recover from the handicap. The calf should be induced to begin eating grain and hay at as early a date as possible, and there should always be an abundance of the hay accessible. Roughage develops capacity in the digestive organs—an item of importance—as the amount of feed that a cow will consume depends largely upon the development of these organs. Heifers should not be bred too young, the age depending upon the breed to which they belong as well as the development of the individual. Holstein heifers should not be bred to freshen before they are 24 months old, as a rule, and a great many would do better if given 26 or 28 months. Heifers should be in good condition at time of freshening, although not fat from an excessive carbohydrate ration. After freshening, they should be worked up to full feed very gradually, receiving all the roughage they care to consume without waste; alfalfa or clover hay fed in connection with silage or roots being a very good combination. The grain should be light in character to begin with and gradually changed to a mixture of grains that will supplement the roughage; 300 pounds ground oats, 300 pounds ground corn, 100 pounds wheat bran and 100 pounds gluten feed being a good combination to go with the roughage mentioned above. The grain can be increased a fraction of a pound a day so long as there is an increase in the milk flow, but as soon as there is no response to the increase it must be cut down until there is a falling off in the milk flow and then the increase may be begun again. When on full feed they will be consuming about one pound of grain to every 3½ pounds of milk produced. In the absence of silage or roots, dried beet pulp may be used, but if none of these are available or are too high in price, oil meal can be used in the grain mixture to advantage. In the absence of silage and roots, the cows will consume a large quantity of alfalfa. Sometimes it is advisable to chaff and moisten a portion of it when fed under these conditions.

The heifer should be milked up to

within six or eight weeks of the time she is to freshen with her second calf, which should be about a year from the time of her first freshening. The method of feeding to pursue while the heifer is dry will depend upon her condition. If she is thin in flesh she should be fed a ration of grain sufficient to put her in good, strong condition before freshening. The grain fed to a dry cow is usually a good investment, as it prepares her for the strain of parturition so that she soon recovers and is ready for good hard work at the pail.

Some think it valuable in the development of a heifer to milk her three times a day during the greater part of her first lactation period. Heifers handled in this way often make remarkably well developed cows when they freshen the second time.

It is also advocated by some that a more pronounced dairy temperament is produced in a cow by breeding her so that she will freshen early. It is necessary to give cows treated in this manner a longer period between their first and second calves, usually 18 months, so that they may have an opportunity for further development. Cows are usually finer boned when handled in this way and very often under size.

HOW TO JUDGE BUTTER.

The making of good butter is a matter of prime importance to everyone concerned, from dairymen to ultimate consumer. Good butter may mean having a premium over the regular market price, or poor butter may mean a penalty instead of a premium. The method of telling just what good butter is, is thus described by G. A. Gilbert of the Colorado Agricultural College:

Nearly everyone thinks he can judge a sample of butter, and it is true that all are able to compare butter from an individual standpoint. However, to judge butter for the commercial taste requires considerable experience. The standard used exclusively in this country for scoring butter is as follows:

	Per cent.
Flavor	45
Body	25
Color	15
Salt	10
Style	5

Flavor is valued at nearly half the total. A judge must have a keen and sensitive taste and must also know the flavor that is demanded in the market. Some of the common faults in flavor are designated as "flat," "fishy," "rancid," "weedy," "old cream," acid, and "stable." Flavor is due to the previous methods of handling the cream.

Body refers to the texture or grain of the butter. It should be firm and waxy. Criticisms of body are "greasy," "tallowy," "cloudy," "brisky," "salvy." Texture is determined by the methods of manufacture. That is, by the churning, washing, working, and salting.

The color should be bright and even. The most common fault in the color of butter is "mottled" or wavy butter. Most consumers can detect small differences of the salt content of butter. This is liable to be confused with flavor.

The amount of salt should be suited to the market and is not criticized in the judging as much as its condition in the butter. It should be thoroughly dissolved and entirely distributed.

Style refers to the clean and neatly finished appearance of the butter and its package.

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DE LAVAL
Cream Separator

There are more than a million such signs on the best farms the country over. They are almost invariably a badge of prosperity and practical progressiveness. They are a most impressive object lesson to the farmer who hasn't one. They point the sure way to better things in dairying.

Where there's a De Laval user without a De Laval User's Sign a new enameled sign will be gladly sent him free of all cost.

Where there's a dairy farmer—big or little—without a De Laval Separator the De Laval User's Sign—that badge of prosperity and progressiveness—will come to him with his separator.

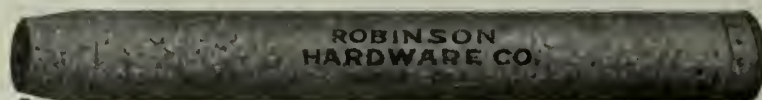
Why not buy a De Laval Separator now? Try one anyway, through the local agent, and satisfy yourself. This will cost you nothing and may save you much. There never was a better time to make so important and self-paying an investment than right now—and the "sign of a good dairy farmer" goes with it.

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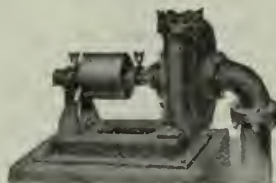
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LEAKLESS IRRIGATION PIPE

Made with long lock seam, powerfully grooved and made doubly strong by soldering full length. Can't break or leak. No rivet heads or rough seams to prevent easy handling. Slides smoothly without trouble. Send for Catalog B.

ROBINSON HARDWARE CO., Gilroy, Cal.



PIONEER CENTRIFUGAL PUMPS

Improved machinery and methods enable us to sell you this pump for less than you can buy any other make.

Our retail prices are less than our competitors' wholesale prices.

We guarantee our pumps the equal in quality and capacity of any. Live agents wanted. Write for circular and prices.

PEERLESS IRON WORKS, Sacramento, Cal.
Mention Rural Press.

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for Milk Cows and Chickens and Young Pigs and Hogs. Cheapest food in the market today. If your dealer doesn't carry it, address

EL DORADO OIL WORKS,

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SAN FRANCISCO.

SHROPSHIRE

Pure Bred and Registered

For 1912:

140 Head Yearling Rams
150 Head Ram Lambs

Enterprise Stock Farm

H. P. EAKLE, Jr. Woodland, Cal.



PROTEIN 44%
EXCEEDING

For Cattle, Poultry and all
Farm Animals

Will double your milk, cream and egg supply.
Write for booklet "SYSTEMATIC FEEDING
AND THE VALUE OF LOY BEAN MEAL."

NORTH AMERICAN MERCANTILE CO.
318-320 Front St., San Francisco

The Live Stock and Meat Situation.

There has been a good deal of talk about our decreasing meat supply and the U. S. Department of Agriculture has come out with some definite figures regarding this shortage. This says:

In the last six years there has been a decline of over 30 per cent in the number of beef cattle in the country, while the population and the consequent demand for meat have increased. According to estimates of the Department of Agriculture the beef cattle in the country on January 1, 1907, numbered 51,566,000, and at the beginning of the present year the number was only 36,030,000.

More than half of the meat produced in the United States is slaughtered under Government inspection. A decrease of over 13 per cent is shown in the number of animals killed under this inspection in the first three months of this year as compared with the same period of last year. This appears from the following figures: Cattle, 158,289; calves, 59,475; hogs, 1,263,667; sheep, 603,742; total, 2,085,173.

The year 1912 was a year of high prices for all classes of food animals, as is evidenced by the greatly increased average price of live stock at Chicago, the representative market of the country. Thus, the average price of cattle (native steers) for 1912 was \$7.95, as against \$6.50 for 1911, or an increase of 22.31 per cent, while the advance in range steers was still greater, being 31.58 per cent. The average price of hogs in 1912 at the same market was \$7.55, as against \$6.70 for 1911, which is an increase of 12.69 per cent. Similarly the average prices of sheep and lambs rose from \$3.95 and \$5.90, respectively in 1911 to \$4.55 and \$7.10, respectively in 1912, which is an increase of 15.19 per cent for sheep and 20.34 per cent for lambs.

Unfortunately, when prices of live stock rule high, as was the case in 1910, there is a natural tendency for farmers to rush everything salable to market, including

immature animals and, worst of all, breeding animals. This inevitably brings about a future shortage, and so the country suffers from alternate periods of comparative and real stringency, while producers often lose heavily through the instability of prices.

No Exports.—With our diminished production in the face of a heavy demand and high prices of the home market, we no longer have a surplus for export, and it is no wonder that our export trade in meat animals and products has declined heavily. Our once great trade with England in cattle and fresh beef has disappeared, and the only considerable items now shipped to foreign markets are prepared hog products such as bacon, hams, and lard. England is now drawing its imported beef supply mostly from Argentina, and its supply of mutton and lamb from Australia and New Zealand as well as Argentina. The Australian colonies are sheep rather than cattle countries and export probably more than four times as much mutton and lamb (by weight) as beef. The number of cattle in Argentina showed a decrease at the last census (1911) as compared with the preceding one (1908).

Imports.—For the first time in our history the exports of animals and animal products of all kinds in 1912 fell below the imports in value. However, the imports are very large only in two items, both of them raw products—hides and wool. The former were admitted free of duty, while the large importations of wool were made notwithstanding a considerable duty. The import trade in hides and skins has assumed enormous proportions, the total value of the shipments in 1912 being considerably over \$100,000,000.

The total value of the imports of animal origin in 1912 was \$203,444,633. Compared with the previous this is an increase, in round figures of no less than \$60,500,000. The greatest single increase occurred in cattle hides, which almost doubled, while all other classes of hides and skins showed substantial advances. The second largest increase was in wool, the quantity imported in 1912 being 238,118,350 pounds, valued at \$42,210,377, as against 155,922,510 pounds, valued at \$25,479,422, in 1911.

It may be noted that the majority of the imported cattle hides come from Argentina. Europe supplies a good many, as well as most of the calf skins. East Indies is the largest contributor of goat skins, while most of the sheep pelts are from England. The latter country also sends us most of the imports of the fine wools. The inferior grades—the carpet wools—originate in Russia and China.

There was a largely increased importation of cattle in 1912, the number being 325,717 as against 252,413 in 1911, and 211,230 in 1910. These animals were nearly all brought over the Mexican border for feeding purposes. They help a little, though not very much, in our beef supply.

The importations of cheese continue to be large, the quantity in 1912 being 48,928,875 pounds, valued at \$9,368,573. This cheese comes mostly from Italy and Switzerland.

Exports.—The domestic exports of animals and animal products in 1912 were valued at \$185,434,196. This is the smallest total since the trade became established on a large scale subsequent to the Civil War. The principal items were: Lard, 552,648,777 pounds, valued at \$58,586,150; bacon, 192,021,658 pounds, valued at \$23,483,949; hams and shoulders, 176,058,810 pounds, valued at \$22,235,899. Each one of these was many millions of pounds less than in 1911.



1st Prize Ram Lamb, Omaha, 1911

INTER-MOUNTAIN FAIR, BOISE, IDAHO—Eleven firsts and seconds, sweepstakes over all breeds, champion ram first and second, champion ewe first and second, and first for flock of one ram and five ewes of any age.

BISHOP BROS.,
San Ramon, Contra Costa County.

SAN RAMON SHROPSHIRE FLOCK

Purebred and Registered Rams and Ewes
For Sale. Individual or Carload Lots.

PRIZES WON BY FLOCK IN 1912.

CALIFORNIA STATE FAIR, SACRAMENTO—Six firsts, four seconds, champion ram and ewe.

OREGON STATE FAIR, SALEM—Two firsts, five seconds, champion ram and ewe.

INTER-STATE FAIR, SPOKANE, WASHINGTON—five firsts, three seconds, champion ewe.

Hillcrest Stock Farm

THORNTON S. GLIDE, Prop.,
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Short-Horn Cattle, Shropshire and Merino Sheep



"Hillcrest Lad"—First Prize Ram at State Fair, 1911.

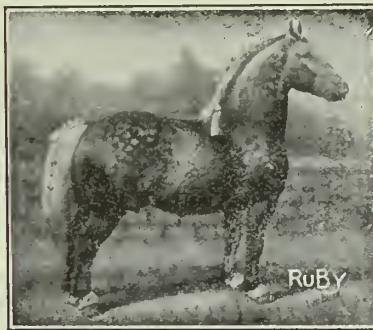
Offers for Season of 1913 an exceptionally fine lot of Pure-bred and Registered Shropshire and Merino Rams, yearlings and two-year-olds.

A. C. RUBY, Portland, Ore.

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THE LARGEST HORSE IMPORTERS ON THE PACIFIC COAST



PERCHERON, BELGIAN, ENGLISH SHIRE, CLYDESDALE, HACKNEYS AND COACH STALLIONS AND MARES.

We sell more imported horses than all other firms on the Coast because we are direct importers and give a four-year guarantee which is good right at home. We have on hand at all times the largest and best lot of heavy draft stallions and mares, both American bred and imported, to be found any place in the West. If you are in the market for a high-class stallion or mare, don't fail to give us a call, as we can sell you more genuine horse for the money than any other importer in the business.

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We Have Imported More Horses Than Any Other Firm in the United States During the Last Year.

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Warranted to Give Satisfaction.

Gombault's Caustic Balsam



Has Imitators But No Competitors.

A Safe, Speedy and Positive Cure for Curb, Splint, Sweeney, Capped Hock, Strained Tendons, Founder, Wind Puffs, and all lameness from Spavin, Ringbone and other bony tumors. Cures all skin diseases or Parasites, Thrush, Diphtheria. Removes all Bunches from Horses or Cattle.

As a Human Remedy for Rheumatism, Sprains, Sore Throat, etc., it is invaluable. Every bottle of Caustic Balsam sold is warranted to give satisfaction. Price \$1.50 per bottle. Sold by druggists, or sent by express, charges paid, with full directions for its use. Send for descriptive circulars, testimonials, etc. Address

The Lawrence-Williams Co., Cleveland, O.

Cutter's Anthrax and Blackleg Vaccines

are given the preference by 80 per cent of California stockmen because they give better results, than others do.

Write for Prices, Testimonials and our New Booklet on Anthrax and Blackleg.

THE CUTTER LABORATORY

P. O. Box 257, BERKELEY, CAL.

Your cream separator will operate at full efficiency if it is lubricated with

Standard Hand Separator Oil

Specially prepared for cream separators. Sold by dealers everywhere and the

STANDARD OIL COMPANY
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SAN FRANCISCO



WATER PIPE

Hot asphaltum dipped, new threads and couplings; 2nd hand in name only. Prices far below your expectations. Screw casing and standard pipe fittings and valves.

THE EXCLUSIVE PIPE HOUSE.

PACIFIC PIPE CO.

Main and Howard Sts.

San Francisco

Seasonable Hints for the Poultry Yard.

[Written for the PACIFIC RURAL PRESS by
SUSAN SWAYSGOOD.]

Ask the average poultryman if his chickens have lice or mites, and he feels insulted; why, I really don't know, but he does and if it stirs his ambition to investigate the mite and lice question, why, it does good to enquire. From early spring until late fall the houses should never be neglected for one week. Any poultryman that does let his houses, or coops go more than one week without using some kind of insect destroyer need not feel offended if the question is asked, nor should he be too prompt to deny the presence of the mighty mite.

For it sure that one week is long enough, if things are left undisturbed, to raise a crop of mites. Fact is the mite crop is lots easier to raise than a weed crop or any other kind of a crop. So we must keep everlastingly after them, not only the houses, but the home made brooders, boxes and wherever chickens sleep or hover. Coal oil alone is good, but to make doubly sure mix it with one-fourth crude carbolic acid or creosote. No mite can resist that, and if the under sides of perches, ends and just around the sides of the house is kept well oiled, say twice a week, no one need be afraid to speak up in meeting and say he has no mites.

When the poultry houses have earth floors, the droppings must be kept cleaned up at least three times a week, or mites will start to hatch in the droppings. As a preventive, spray the floors once a week with lye water, and around the door-sills and any loose place where there is wood. It does not take long when one is doing up the chores to spray a few houses.

In home made fireless brooders don't forget to look under the cloth around the frame, and even on the cloth for they will breed in all kinds of places and unless you are used to looking for such things you will never give them credit for half the ingenuity they display in finding new homes.

POULTRY.

S. C. WHITE LEGHORNS—Heavy layers, California's greatest prize winning strain. Eggs, chicks, stock. Send for list. M. Dutterbernd, Petaluma.

BARRED PLYMOUTH ROCKS, White Minorcas, White Holland turkeys. Stock and eggs only. L. N. Cobbledick, Oakland.

BARRED ROCKS ONLY—We have some fine breeders for sale now. Write for prices. G. L. Hawley, Madera, Cal.

BROWN LEGHORN ROOSTERS, chix and eggs, same in Barred Rocks, White Minorcas. W. S. Rose, Yuba City, Cal.

ORPINGTONS, BUFF AND WHITE—Summer sale of stock. Mrs. S. Swaysgood, Route 2, Pomona, Cal.

FOR SELECTED EGGS AND CHICKS from S. C. White Leghorns, see Hopland Stock Farm advertisement.

BABY CHICKS, from heavy layers. White Leghorns, Barred Rocks, R. I. Reds. Free folder. White Hatchery, Petaluma.

CROLEY'S PIONEER EGG MAKER—Makes poultry pay when egg prices are low.

CHICKENS, DUCKS, GEESE, GUINEAS, Pea fowl. Address Wm. A. French, 545 W. Park St., Stockton, Cal.

TRAPNESTED S. C. WHITE LEGHORNS. Eggs, chicks, stock. A. R. Schroeder, Box P, San Gregorio, Cal.

WHITE LEGHORNS—Chicks, eggs, cockerels. Fine stock. Reasonable. O. B. Morris, Lodi, Cal.

BRONZE TURKEYS AND EGGS. Ed Hart, Clement, Cal. Large size, good plumage, early maturity.

TWIN OAKS FARM—W. H. Bissell, Proprietor, Livermore, Cal.—Buff, White Orpington.

RINGNECK PHEASANTS—Eggs for hatching. T. D. Morris, Agua Caliente, Cal.

CROLEY'S HIGH GRADED HARD SHELL—The leader in poultry shell.

SAVE BUTCHER'S BILLS.—This is the month when the male birds should be separated from the hens, unless needed for breeding, and unless they are good stock they had better be fattened up for table purposes. I have found that by putting old roosters in a box, singly, and feeding a soft mash for about two weeks with green feed once a day and a little meat for a relish that the meat is very good and wholesome. Of course you can cook them any way, but they are better when stewed very slowly for several hours and then made into chicken pot pie with a pint of good rich milk or cream added before serving. The milk or cream takes away what strong taste there happens to be and gives a delicious gravy. A farmer can't afford to sell a cockerel or older rooster for a song and then turn around and pay a long price for some old cow or bull beef.

Just a short time back there was a big hubbub about cheaper meat and we were going to have frozen meat from Australia; but we are still paying the same prices, and now they see another source of supply in sight: the Argentine Republic is freezing rabbits and shipping to France and looking towards the United States. Well, let them look, we can raise plenty of good wholesome poultry and do without "frozen bunny" if they will give us as fair a show as they do the outsiders. It does beat the Dutch that with such high prices for meat the prices on table poultry and eggs are held so low that hundreds are selling off their stock and going out of the business.

Now with the male birds out of the pens the eggs will keep much better, the hens will get rested up so that by the time prices move upward the supply will be increased. We are having very muggy weather in the south, some days no sunshine at all and while it is all right for growing, all kinds of foodstuffs should be used as fresh as possible, eggs are better sold at least twice a week in such weather. It pays to get them to the consumer while the new taste is on them, as it creates a taste for more of the kind, and with that taste in good demand the price is bound to improve.

I read in a local paper the other day that times were so prosperous with farmers that they were getting money in by the bushels. I am going to buy me a bushel basket so as to be ready for the rush. I believe in being ready for all good things that come my way, but so far a very small purse has been sufficient for the prosperity that has struck my pathway.

RAISE GOOD STOCK.—But just the same I keep on raising the best chickens on earth so as to have some to sell when there is a demand for them, and I believe that demand will increase every year for a long time. Those poultry men who are failing to make a living are the ones who are feeding a lot of dead-head chickens that are not worth anything either dead or alive. They make anybody poor that feeds them, so it runs with all kinds of live stock and why expect anything else with chickens. This is the time to cull out the dead-heads, don't feed them through the molt another year, but put them into close quarters and feed a few bushels of prosperity corn to them, then sell for table use.

With the non-producing hens and roosters out of the flock, the feed bills will be lighter for the grown fowls and you can afford to feed a little extra to the growing stock. Don't forget that a growing chick must have the food to build the frame as well as support life, and if

the flock are on a poor, bare range the food must be served to them.

The laying qualities of a hen are very largely dependent on the way she is raised. No hen can make a record in

laying unless she has had the capacity to lay built in her bone and flesh with plenty of good wholesome food, pure air, and clear good drinking water.

At the Missouri National Egg Laying

For Egg Profits you should use

HIGH PROTEIN

Meat Meal Bone Meal
Blood Meal Oyster Shell
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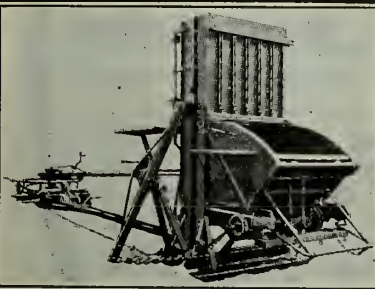
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contest, the wonder is the English pen of White Leghorns. These hens, after a stormy trip across the Atlantic, commenced to lay in about three days from the time they arrived at Mountain Grove, and are now 129 eggs in advance of the next highest pen. Now, when we consider that there are 69 pens of American birds, all bred by good poultrymen and sent out as birds fit to compete with the world, we want to know how it comes that these English hens can beat ours.

At least that is what the poultrymen are asking. Personally, I need not ask, because I know. And what I know is this: that by a proper selection for several generations, and by feeding for strength and endurance, rather than for flesh these English hens have been raised to that degree of constitutional efficiency that their systems can bear the strain of egg production without running them down.

DIFFERENCE IN FEED.—The oats raised in England are what we might call "fat oats," that is, the kernel is round and plump and the fibrous husk is small in comparison while oats grown in the United States are more fibre and small kernel. Climate is at the bottom of the oat growing, and it is my opinion that it has some influence on this pen of English birds. They have been well bred, well fed, and well cared for before starting on this trip, and now the climate is stimulating them to do their best.

NOTHING TO WORRY ABOUT.—Poultrymen on this side have no cause to worry, or get a craze for some of these English stock, because the next generation if fed and raised on our feed will not be one bit ahead of our own native stock. All there is to do is improve our own by selection and all other means in our power and feed the growing chicks so that when they arrive at maturity they will have a full capacity and endurance.

The man who raised those birds never fed in a haphazard way, but in a regular, systematic way; he never over-crowded his growing chicks, in putting fifty where there ought only to be twenty-five; he never left the drinking vessels to get warm and dirty so the chicks must either go thirsty or drink filth; he never threw down a mess of corn and said it's "Hobson's choice", that or nothing; no sir; he did none of these, and many other things that lots of poultrymen do, that are now getting "a bee in their bonnet" about these "Wonderful White Leghorns from over the herring pond".

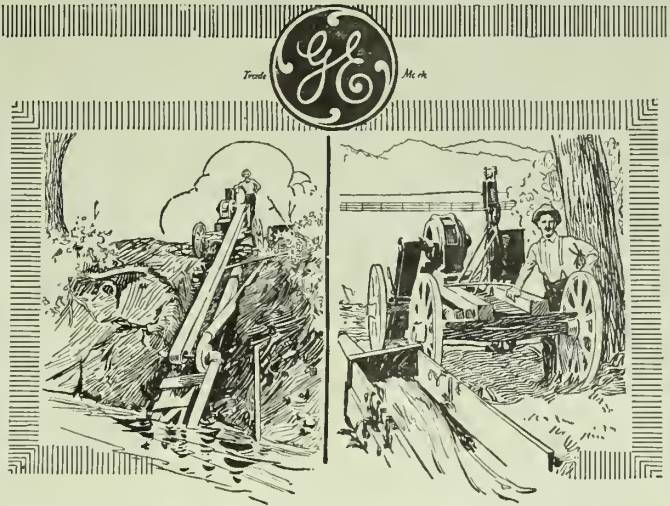
It never pays to get excited over these things until we have been to confession, and fessed up to all our own shortcomings just to see where we stand and who or what is to blame for the mistakes we have made.

In England, chicks are fed every two hours, and they are fed a great deal of oat grits, which is the meat of the oat without the husk, so we can easily see where these hens get their endurance from. I feed rolled oats, paying a dollar for 24 pounds and yet I think it cheaper than chick feed at 3 1/2 cents, because I know it will pay a good dividend in eggs when the chicks arrive at maturity. Of course I feed some chick feed and plenty of lettuce as the chicks need variety. I think with plenty of lettuce we can run the English oats a race, I wish people would grow more lettuce both for the chicks and the children and incidentally for themselves. It is good all around, nothing better for chicks, turkeys and humans.

The sugar beet crop in Yolo county is reported to be in fine shape, and the yield promises to be heavier than last year. The Alameda factory and the Hamilton company each will use part of the crop, and harvesting will commence about August 1st.

The beet sugar factory at Chino is putting dust-screens at its beet dumps. By the use of them the dirt that clings to the beets when pulled is sifted out and caught in a hopper. The dust is then

weighed and charged against that load of beets. The Chino factory will receive beets this year from 12,000 acres and is preparing to slice 200,000 tons. Harvesting will commence in July.

**How electricity saves
the Farmer money**

This twenty-horse-power electric motor, photographed on the Melone Co.'s Ranch, Napa, California, not only pumps water to irrigate forty acres of alfalfa but, between times, runs an ensilage cutter, a rock crusher and a barley crusher. Being bolted to a wagon, it is easily moved from place to place.

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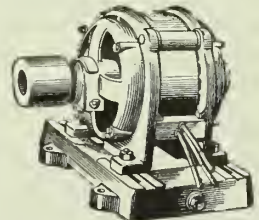
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The Home Circle.

A Severe Experiment.

It was an ill-tempered day, with a fine, penetrating mist and a raw east wind. Every one who came into the store shivered as the warm air struck them, and the east wind seemed to have possession of all their tempers.

Caleb Wilson, the proprietor of the store, was at best a gnarly old gentleman with an uncertain disposition, which was growing more uncertain as the day progressed and his trials accumulated. Mrs. Jones could get everything she priced "a mite cheaper over to Harmon's." Mrs. Austin, his best customer and butter-maker, brought in doubtful butter; and he dared not tell her so, but meekly took it at his highest price. Mrs. Sampson returned a dress because she found a "damaged spot right in the middle of the piece." So it had gone all day.

Just at nightfall Bruce, his only son, a boy of fifteen, came in, and stood by the showcase, talking to a mate in the vicinity of Mr. Wilson, who was marking goods behind a stack of muslins.

"I feel awful bad about their changing our arithmetics," the boy was saying. "Pa just can't afford to get me one, I know."

"Yes, 'tis bad for some of you fellows," Bruce answered in a lofty tone. "Of course, with me it is different. Father can get whatever I want."

The old man's face grew grimmer, and his thin lips set in a displeased line.

"So, son, young man," he muttered, "you are crowing pretty loud." Bruce went on: "I tell you I am glad my father's rich. I'd most rather die than go dressed as some of the fellows have to, and dig into all kinds of work."

"Guess you could work if you had to," the boy replied, rather tartly.

"Yes; but I don't have to," Bruce retorted with a laugh.

"You don't, sonny? Well, we'll see," Mr. Wilson muttered again, peering round the muslins at the spruce, rather supercilious-looking boy. Then his gaze wandered down the length of the long, well-filled store. It was the largest in the county; and the honest, energetic old man had the patronage of the entire countryside, in spite of his surly ways. He gazed long down into the dim interior, until his clerks commenced lighting up.

"I am tired of keeping store, anyway," he said, half aloud. Then, roused sharply, "Never mind lighting up," he called to the two young men. "Come here." He moved to the desk, and they followed him. "I shan't need you any more. Here's a month's wages that will last you while you are hunting another job," he said, showing the money toward them.

"Why," they both began in astonishment, "have we done anything?"

"No, no, boys; you are all right. I will give you good recommends. Hope you will have luck getting a place."

He turned from them and commenced to pile up the books on his desk. They stood an instant in blank amazement. "Shan't we come back for the evening?" one of them ventured. "No, no; you can go now," he answered impatiently.

"Why, father, what does this mean?" questioned Bruce, who had been an interested auditor to these proceedings. His father, vouchsafing no answer, went around carefully, closing the great shutters, setting the burglar-trap shotgun, and double bolting the doors. He put the front doorkey in his pocket.

"Bring the account books from the

desk," he said to Bruce. The boy obeyed. Then he extinguished the light, and they groped their way in the darkness to the back door. "Take the books to the house, then come with me," was the next command.

He carried them to the big white house just across the alley. Then down the long village street they went rapidly, with coat collars turned up in slight protection against the driving mist. Finally, they stood on the bridge over the river just above the dam. The fall rains had swollen it into quite a torrent. Mr. Wilson took the two big store keys from his pocket, and handed them to Bruce. "Throw them in," he said.

"Into the water?" the boy gasped. He was very white; but, knowing his father, he said no more, only obeyed.

"Now, young man,"—Mr. Wilson faced him with a keen gaze on the boy's startled countenance,—"that store will stay shut until I see fit it should be opened. It may be five years. It may be fifty. Meantime, I calculate I've got about income enough from other things to keep us off the town. So, after this, if you get anything better than blue jeans, you'll flax around for it."

Such a mystery had never befallen the people. The whole country went wild over it. But the blank, wooden front of the big store and Mr. Wilson's grim face were alike imperturbable. Mrs. Wilson and the two married daughters, after vain questioning and many tears, dropped it meekly. Bruce, who alone held the key of the problem, was naturally silent; but a bitter desire to shame his father grew in his heart.

"Guess when he sees me in rags, he'll find some way to fix it up. I'd like to know what work he expects me to do, anyway," he thought, sullenly.

As the months went by, in spite of his mother's care, his clothes grew shabbier and shabbier. His shoes were actually ragged, but his father seemed not to notice it. Bruce had always been unpopular among the boys for his "bossy way" and his "airs." So in his adversity he had no friends to turn to. The mysterious closing of the store and the pinched way in which the family appeared to live was "good enough for him" in their eyes, and the boy's school life was sometimes almost a purgatory.

"Most die if you had to go like some of us fellows, wouldn't you?" jeered one of them one day.

"You'll have to stay home in a blanket pretty soon," chimed in another.

"Mr. Jenkins wants a boy up in his tanyard. Better try for the place," suggested a third.

"When you see me in Jenkins's tanyard, you'll know it," shouted Bruce, boiling with passion. "My father's got money enough—"

"Oh, bother money, Bruce Wilson!" broke in one of the other older boys. "You make me sick!— You weren't any good with it, and you ain't any good without it. There's one thing money can't buy and you haven't got, and that's sense."

He slunk away from the laughter of the boys, with black rage in his heart. "Twas all his father. He'd make him sorry," was the whole thought of his life. Daily the neat, gentlemanly boy grew more careless and worthless.

"He looks and acts like a tramp," his sister said one day to his mother. "Can't father fix him up some? It might give him a little self-respect."

Mr. Wilson, coming in, heard her. "No, he can't," he answered. "A self-respect made out of clothes isn't going to stand by a fellow. I'll own that I'm disappointed in the boy. I thought he was worth saving; but I guess he ain't, I guess he ain't." His voice quivered, and

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he turned to the window.

I think just that break in his father's voice went a long way toward saving Bruce Wilson, for he was in the next room and heard it all.

"Why, I believe he cares for me. He honestly cares, and isn't doing it for meanness," he thought, with a softening throb in his heart. He lay on the lounge a long time with his head buried in the pillows. When he got up, there was a look of grim determination on his face, very much like his father's.

That night he announced at the tea-table: "I've been up to see Mr. Jenkins.

He will give me my board and fifty cents a week while school lasts. In vacation he will give me two dollars."

Mrs. Wilson dropped her fork in dismay. "Why, Bruce, that's the dirtiest, awfulest-smelling place; and Mrs. Jenkins has the name of being a dreadful housekeeper."

"Yes, it's a pretty tough place; but 'twas all the job I could get. I'll have to ask you, father, to advance me money enough for a pair of overalls and a wamus. You know you promised me blue jeans." Mr. Wilson, without a word, handed him a dollar and a half.

Monday morning Bruce commenced work. The horrible smells sickened him. Mrs. Jenkin's cooking spoiled even his appetite; but there was a good deal of his father in him, after all, so he went on without a thought of giving it up.

"Yes, I am 'Jenkins boy'; and I expect I do smell some of the tanyard," he remarked, cheerfully, to the boys. "And if any of you fellows object, I'll fight it out with you."

Somehow, though, "Jenkins's boy" grew in popularity with the "fellows," in spite of his hands, and sometimes even his rather objectionable smell.

All the long summer he lived and worked at the tanyard. Mrs. Wilson missed him sorely, and shed many tears in secret; while Mr. Wilson contracted a habit of strolling up to the yard, and from behind the safe shelter of the big piles of bark watching the boy with an anxious countenance.

"I'm afraid he's working too hard this hot weather," he said to his wife. "It seems sort of unnatural, anyway, to have the only boy we've got boarding away from home."

"Everything has been unnatural for 'most a year back, ever since you took that notion to shut up the store," she answered tearfully.

"Well, we'll see, we'll see. I ain't over the notion yet," was the discouraging rejoinder.

In the fall Bruce obtained a situation in the rival store of the village, which was doing a flourishing business now its formidable opponent was out of the way. His terms this time were his board and ten dollars per month. The winter dragged slowly and lonesomely along for the old couple. Still Mr. Wilson bided his time.

One morning in the spring every billboard in town and every fence the country over held big posters announcing, in large, impressive letters:

I, Caleb Wilson, having rested until I am tired,
Will open my store as suddenly as I closed it.
Old goods sold at cost. New ones, some over.
Hoping my friends will be as glad to see me as I am to see them, I am,
Your obedient servant,
CALEB WILSON.

"Ah! This is like living again!" he said to himself, as he felt the old, familiar floor under his feet, and the old familiar piles of goods confronted him. He drew long breaths of delight as he hustled about, directing his help in the "redding up."

It was growing a little late when he put on his hat and went slowly down the street. Rather hesitatingly he opened the door and went into the other store. Bruce was alone; the proprietor had gone to tea. Some way he looked unfamiliar to Mr. Wilson. He had grown so, and the boyish look had left his face. It seemed, as he looked at him, that he had lost his boy forever. He could have gathered him to his heart in a strange excess of tenderness. The sudden tears welled to his unaccustomed eyes. He walked briskly up to the boy.

"Well, Bruce, does your board suit you?" he interrogated, brusquely.

"Fairly," answered Bruce, with a smile. "Good as mother's?"

"Well, no; it don't seem so to me. Maybe I am prejudiced."

"Get pretty good clothes?"

Bruce looked down at the plain homespun. "Better than blue jeans," he answered, laconically.

"Well, you've flaxed around for them, haven't you?"

There was a silence. Then Mr. Wilson commenced again:

"I never could abide that man Harmon getting ahead of me. So, Bruce, if you will come over and work in my store, I'll give you your board and fifteen dollars a month this year, and I'll send you to college next year. But you'll have to keep on flaxing." He came nearer to the boy and said, in a low voice, almost appealingly: "Say, Bruce, you have got more sense, haven't you? And you've got over the notion that good clothes and a rich old father will make a man? Say, sonny, you don't think I was too hard on you, do you?"

"Well," the boy said, rather hesitatingly, "you did jump on a fellow pretty heavy; but—I guess it was worth it."

Then his heart fairly leaped from his mouth, for his father, his hard, unyielding old father, suddenly leaned over and kissed him full on his mouth, as he was kissed when he was a little child.—Jeanette Scott Benton.

Facts About Tea and Coffee Not Generally Known.

One pound of good tea makes about 350 cups. One pound of good coffee makes only 60 cups. Therefore, tea at \$1 per pound is more economical than coffee at 30 cents per pound.

Much coffee is bad for the nerves and stomach, and many people have to discontinue drinking it and take a cereal substitute. If they drank good tea instead, it would not only be healthier, but far more enjoyable, refreshing, and invigorating.

Good teas are now cured, sorted, and packed entirely by machinery, which is a great improvement over the old hand methods.

The people of Australia and New Zealand drink tea at all meals and sometimes between meals, but they do not suffer from nerves or stomach troubles on that account. They usually drink it fairly strong, with the addition of sugar and milk. The consumption of tea in New Zealand is over seven pounds per capita a year, whereas in the United States it is only a little over one pound per capita.

Russia is a great tea-drinking country and the consumption is increasing every year. The Russians pay high prices for their teas and generally drink them with a little lemon in preference to milk.

Tea is very susceptible to moisture and foreign odors, and is easily spoiled by not being kept in an absolutely air-tight tin. Cardboard and paper packages and even lead packages should always be avoided, as foreign odors and flavors easily penetrate them and permeate the tea, and in any case the tea becomes stale on the retail store shelves.

It is possible now for the consumer to buy the best teas freshly packed in perfectly air-tight tins, direct from the importers through the mail, at reasonable prices, and the teas are delivered to you by the United States parcel post. The housewives should take advantage of the mail and parcel post and buy good teas.

An Unromantic Man.

"Don't you long for the old swimming hole now?"

"Can't say I do. I don't believe the muddy old creek could compare with a modern bathroom."—Louisville Courier-Journal.

Among Those Present.

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A Poor Crop.

"How's your garden coming along this year?"

"My cutworms and caterpillars are doing fairly well, but my potato bugs are not flourishing."—Kansas City Journal.

A Slap Back.

"You are getting very bald, sir," said the barber.

"You yourself," retorted the customer, "are not free from a number of defects that I could mention if I cared to become personal."—Kansas City Journal.

"How did you like the actor who played the king?"

"Ever since I saw him I've been in favor of a republic."—Fliegende Blaetter.

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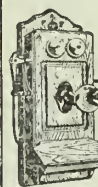
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CALIFORNIA DEVELOPMENT BOARD

Ferry Building, San Francisco

THE MARKETS.

San Francisco, June 18, 1913.

(Unless otherwise noted, quotations represent prices paid to the growers.)

Cereals.

WHEAT.

Spot supplies in the North are moving off well, California millers being among the largest buyers, though there is also some Oriental business. Business here, however, is dull, and last week's advance in club has not been maintained. Favorable crop conditions are reported in the North, which now produces much of the wheat used here.

California Club, cttl.....	\$1.67½ @ 1.70
Forty-fold	1.72½ @ 1.75
Northern Club	1.67½ @ 1.70
Northern Bluestem	1.77½ @ 1.82½
Northern Red	1.65 @ 1.82½

BARLEY.

Offerings of new barley are increasing a little, and prices for all grades of feed have been marked down. Values, however, are a little unsettled, as most holders are asking more than quotations, while buyers are inclined to hold off.

Brewing and Shipping...	Nominal
Choice Feed, per cttl.....	\$1.40 @ 1.45
Common Feed	1.30 @ 1.35

OATS.

Prices are steadily held at the former level. Some good-sized lots of Texas red oats have arrived, but there is no very large movement in any line.

Red Feed	\$1.65 @ 1.85
Seed	Nominal
Gray	Nominal
White	1.70 @ 1.75

CORN.

Both local and Eastern yellow are quoted a little lower, though Eastern stock is quite firm at the present figures. A good deal of California corn is now coming into the market, finding a fair demand.

Cal. Yellow	\$1.55 @ 1.60
Eastern Yellow	1.50 @ 1.55
Eastern White	Nominal
Kaffir	1.50 @ 1.55
Egyptian	1.70 @ 1.75

RYE.

This grain remains dull and practically nominal, as there is hardly enough business here to set a definite standard of values.

Rye, per cttl.....	\$1.35 @ 1.45
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BEANS.

Local quotations on lima beans now reflect the firmer situation in producing districts. Stock there is said to be almost entirely sold out, the remainder from last year's crop being mainly in dealer's hands, and there seems to be no heavy supply anywhere. A scarcity is reported in the East, with an active demand from jobbers everywhere. Prospects for the new crop are good, but all markets are likely to run short before all their former firmness, and now other values remain about as before, but the general situation is better than for some time past. The white varieties maintain all their former firmness, and how other descriptions are moving off in good shape, with some prospect of an early advance.

Bayos, per cttl.....	\$3.15 @ 3.25
Blackeyes	3.15 @ 3.35
Cranberry Beans	4.70 @ 5.00
Horse Beans	1.90 @ 2.15
Small Whites	5.40 @ 5.50
Large Whites	4.75 @ 4.90
Limas	5.50 @ 5.60
Pea	Nominal
Pink	3.40 @ 3.50
Red Kidneys	3.90 @ 4.00
Mexican Red	4.00 @ 4.20

SEEDS.

There is no demand of much importance for anything in this line, and few large offerings have come out lately. Values are steadily maintained as for some time past.

Alfalfa	12½ @ 14c
Broomcorn seed, per ton....	\$27.00 @ 28.00
Brown Mustard, per lb.....	3¾c
Canary	6 @ 6½c
Hemp	3 c
Millet	2½ @ 2¾c
Timothy	Nominal
Yellow Mustard	Nominal

FLOUR.

Values have been very steady for some time past, and trading is on about the usual scale for this season.

Cal. Family Extras.....	\$5.60 @ 6.00
Bakers' Extras	4.60 @ 5.20
Superfine	3.90 @ 4.10
Oregon and Washington...	4.90

Hay and Feedstuffs.

HAY.

Arrivals locally have been a little larger for the last week, the increase consisting largely of alfalfa, though there is also a good deal of grain hay coming from the Sacramento valley district. A continued increase in arrivals is expected, and while the demand here has so far been limited, it is expected that the consuming trade will soon begin to buy for the season's requirements. Current arrivals of grain hay are of good quality. Local values are unchanged, with growers holding firmly, and some consumers in the country are paying higher prices than can be obtained from dealers. Straw is scarce and higher, with a fair demand.

No. 1 Wheat, or Wheat and Oat	\$18.50 @ 20.00
do No. 2	15.50 @ 18.00
Lower grades	15.00 @ 15.50
Tame Oats	15.50 @ 20.00
Wild Oats	14.00 @ 17.00
Alfalfa	12.50 @ 13.50
Stock Hay	9.00 @ 11.00
Straw, per bale	45 @ 95c

FEEDSTUFFS.

The general demand for feedstuffs continues active, and most descriptions are firm at the old quotations. Bran, however, is a little lower, with increased offerings, and rolled barley has eased off in sympathy with the whole grain.

Alfalfa Meal, per ton.....	\$22.00 @ 24.00
Bran, per ton	28.00 @ 29.00
Oilcake Meal	35.50 @ 36.50
Cocoonut Cake or Meal.....	Nominal
Cracked Corn	34.00 @ 35.00
Middlings	34.00 @ 36.00
Rollod Barley	30.00 @ 31.00
Rollod Oats	35.00 @ 36.00
Shorts	27.00 @ 28.00

Garden Truck.

VEGETABLES.

New red onions from the delta are in free supply, and considerably lower, although there is not much other stock in the market. Garlic also is lower, and practically all summer vegetables show a downward tendency, offerings being liberal in all lines and excessive in a good many. Prices for green corn are still fair, but gradually dropping with increased shipments, and tomatoes have fallen sharply, with offerings from both Southern and valley points. Eggplant is coming in with fair regularity, finding a ready market as quoted. Good lots of green peas are doing a little better, while string beans and summer squash are cheap, with larger supplies than can be readily disposed of. Asparagus shows a narrower range, with higher prices for ordinary stock, though the demand is hardly so active at the advance. Cabbage is considerably lower.

Onions: New Red, sack.....	50 @ 60c
Garlic, per lb.....	3½ @ 4½
Cucumbers, per box.....	40 @ 90c
Cabbage, per cttl.....	40 @ 50c
Carrots, per sack.....	75c
Cauliflower, per doz.....	40 @ 50c
Rhubarb, box	75c @ 1.25
Green Peppers, lb.....	10 @ 20c
Green Peas, lb.....	4 @ 4½
Asparagus, box	75c @ 1.25
String Beans, lb.....	2 @ 6c
Summer Squash, box.....	40 @ 65c
Green Corn, sack	3.50 @ 4.25
Okra, box	25 @ 40c
Tomatoes, box	1.00 @ 1.25
Eggplant, lb.....	10 @ 15c

POTATOES.

New potatoes from various districts are beginning to pile up in the local market, as river stock does not find much demand for shipment. All lines of new potatoes have declined sharply, while old stock is quoted at a narrower range.

Old River Whites, cttl.....	55 @ 65c
New River Whites	\$ 1.00 @ 1.50
Early Rose	1.00 @ 1.50
Garnet	1.60 @ 1.75

Dairy Produce.

POULTRY.

No change has been made in prices, but the market continues very weak all round. Large shipments are still coming in from both local and Eastern points, and the supplies are moved off with difficulty. This is especially true of hens, California stock bringing very poor prices, though broilers and fryers find a fair demand.

Large Broilers, per lb.....	21 @ 22 c
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Small Broilers, per lb.....	21 @ 22 c
Fryers, per lb.....	23 @ 25 c
Hens, extra, per lb.....	15 @ 16 c
Hens, large, per lb.....	15 @ 16 c
Small Hens, per lb.....	14 @ 15 c
Old Roosters, per lb.....	10 @ 12 c
Young Roosters, per lb.....	22 @ 25 c
Squabs, per doz.....	\$ 1.50 @ 2.00
Geese, per pair.....	1.50 @ 2.00
Ducks, doz.....	4.00 @ 6.00
Turkeys, live	21 @ 22 c

BUTTER.

Values are firmly held at the same level as for two weeks past, and the market is in satisfactory shape all round, with a good demand both for the local trade and for shipment, and the movement into storage is very moderate.

Thu. Fri. Sat. Mon. Tu. Wed.						
Extras	27½	27½	27½	27½	27½	27½
Firsts	27	27	27	27	27	27

EGGS.

Eggs have gone up to 24½c again, with a firm market and prospects of further advance. Arrivals are falling off, with comparatively light receipts of the lower grades, and the demand for low-grade stock is being met with Eastern eggs. The daily arrivals clean up fairly well under an active local demand.

Thu. Fri. Sat. Mon. Tu. Wed.						
Extras	23½	24	24	24	24½	24½
Firsts	22	22	22	22	22½	22½
Selected						

Pullets.....	21½	21½	21½	21½	22	22½
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CHEESE.

Cheese is a little firmer than last week, both flats and Y. A.'s showing a gain of ½c.

Fancy California Flats, per lb.....	15 c
New Young Americas, fancy.....	17½c
Monterey or Jack Cheese.....	15 @ 15½c

Deciduous Fruit.

While summer fruits are increasing both in variety and amount offered, prices on most lines are maintained with some steadiness. Strawberries are held at last week's prices, and currants, though cheaper, are moving off well. Blackberries are considerably lower, while loganberries and gooseberries remain at the old quotations. Raspberries show a wide range, according to source and quality. Santa Clara stock bringing the top figure, while supplies from north of the bay are cheaper. Watermelons have been offered for several days and have had a good demand. Cantaloupes also sell readily, though they are cheaper, with largely increased offerings. Both new and old apples are held as last quoted, the latter being fairly well cleaned up. Supplies of cherries are very moderate, and choice lots bring an advance. Apricots, though more plentiful than last week, find a lively demand at former prices, and while some lots of peaches are cheaper, first-class stock is held about as before. Plums are higher, with a larger variety offered, and most stock of attractive quality. Figs are in good demand at satisfactory prices, although offerings are increasing.

Loganberries, chest	\$ 5.00 @ 7.00
Blackberries, chest	6.00 @ 8.00
Gooseberries, drawer	40 @ 60c
Raspberries, chest	6.00 @ 15.00
Currants, chest	6.00 @ 7.50
Strawberries:	
Longworth, chest	6.00 @ 10.00
Other varieties, chest.....	4.00 @ 6.00
Apples: New, box	1.00 @ 1.50
Newtown Pippins	1.50 @ 2.00
Cherries:	
White, box	25 @ 30c
Black, box	35 @ 50c
Royal Ann	40 @ 75c
Apricots, crate	75c @ 1.00
do lug box	1.00 @ 1.25
Peaches, box	65c @ 1.25
Plums, crate	1.00 @ 1.50
Figs: Black, drawer	1.50 @ 2.50
White	1.00 @ 1.25
Cantaloupes, large, crate....	2.50 @ 4.00
Watermelons, per lb.....	5 @ 6c

Dried Fruits.

All prices remain as last quoted, and the general feeling is very firm, though the activity observed last week is said to have given place to a quieter market. There has been a very fair movement in most lines, however, taking most of the holdover of fruits out of growers' hands and leaving but moderate supplies in the hands of packers. The drop in demand may be attributed partly to financial conditions, though bear interests may make this an excuse in the effort to depress prices. Old evaporated apples remain firm, the remaining supply estimated at about 400 tons, being mostly in the hands

of the trade. Old peaches show less firmness than most other lines, though holdings have been considerably reduced, and the feeling in regard to the new crop is very firm, with reported offers of 5c. In some districts. The raisin situation is gaining strength on reports of the completion of arrangements with several packers by the Associated company, and the movement is gradually increasing. So far business in new crop goods of all kinds has been moderate, and there may be some delay in moving the crop, as there is a strong disposition in the jobbing trade everywhere to buy on a hand-to-mouth basis, avoiding the accumulation of large stocks. The New York Journal of Commerce says: "The movement in all lines of California dried fruits is regulated by passing requirements of consumption. In some kinds business has quickened of late, but the demand does not exceed jobbing limits. There is more activity in prunes than anything else, but no important sales are reported, the demand being chiefly for the larger sizes, which are short. Stocks on the spot are reported to be getting into small compass on every size above and including 60s, and the market closed strong with an upward tendency on these counts. The market for peaches is easy. Thought quite a good deal of business has been done recently, there is reported to be still a considerable carry-over of old stock in Eastern markets. Some packers are offering 1913 fruit at 4½c for standard, 5c for choice, 5½c for extra choice, and 5¾c for fancy in 50-pound boxes f. o. b. Coast for August-September shipment, which prices are said to be below a parity with growers' present ideas of values on the new crop. Apricots are quiet but firm, both here and on the Coast. There is little interest shown in spot raisins and still less in forward shipments. Prices on goods in all positions are nominal."

Evap. Apples, per lb.....	4½ @ 5½c
Apricots, new crop.....	12 c
Figs: White, new crop.....	2½ @ 3 c
Black	Nominal
Calimyrna, new crop	3½c
Prunes: 4-size basis, spot...	3 c
do 1913 crop	3½ @ 4 c
Peaches	3½ @ 4½c
Pears	4 @ 7 c
Raisins—	
Loose Muscatels in sweatbox ..	2¾c
Thompson's Seedless.....	5 c
Seedless Sultanias	3 @ 3½c

Citrus Fruits.

Prices in the East for California oranges are holding up well, in spite of heavy shipments for this time of the year. Oranges have been going East at the rate of 60 cars per day, most of them being loaded with valencias.

At New York on Monday, June 16th, the auction showed averages of \$7.65 down to \$2.55 per box for valencias; bloods, \$3.80; seedlings, \$3.70; St. Mikes, \$3.10 to \$4.05. The other auction points were not as high, but prices in all of them were good.

Lemons are selling at good prices in the East, first-class stock bringing as high as \$7.50 per box, and poorer grades selling down to as low as \$5.25.

Crop prospects in southern California continue good, and unless the June drop is heavier than anticipated, there will be a good yield for the coming season.

Total shipments of oranges to June 15th were 11,189 cars, as against 23,694 cars to the same date last season. Lemon shipments were 1563 cars, as against 3899 cars last year.

Navel oranges are quoted in the San Francisco market a little lower than last week, but valencias are higher, finding a very fair demand. Grapefruit and lemons are firm at the old quotations, while Mexican limes are lower.

Oranges, per box—	
Valencia, choice to fancy..	\$ 4.50 @ 5.50
Navels, good to fancy....	2.50 @ 4.00
Grapefruit, seedless	2.50 @ 5.00
Lemons: Fancy	6.00 @ 7.50
Choice	5.50 @ 6.00
Lenionettes	5.00 @ 6.00
Limes	6.00 @ 7.00

Nuts, Honey, Hops, Etc.

NUTS.

The nut market remains quiet, with prices largely nominal, supplies everywhere being extremely light. Aside from the generally recognized shortage of almonds, little has been heard regarding the new crop.

Almonds—	
Nonpareils	17½c
1 X L	16½c

Ne Plus Ultra.....	15½c
Drakes	12½c
Languedoc	11½c
Hardshells	8 c
Walnuts, 1912 crop—	
Softshell No. 1.....	16 @16½c
Hardshell No. 1.....	15 @15½c
No. 2	10½c
Budded	17 c

HONEY.

Several small shipments of new comb and extracted honey are coming in, being mostly of good quality, and as old stock of desirable grade was well cleaned up, the new offerings find a ready market at the prices quoted for some time past.

Comb, white, new	15 @17 c
Amber	11 @12 c
Dark	9 @10 c
Extracted, white	8 @10 c
Amber	6½ @7 c
Off Grades	5 @6 c

BEESWAX.

There is not much demand, but only a few limited lots are held by local dealers, and with no pressure to sell, prices are well maintained on the lighter grades.

Light	30 @31 c
Dark	26 @28 c

HOPS.

Remaining supplies of old hops are light, with little strictly first-class stock, and 16c. is about the top price offered. Not much is being done in regard to the coming crop, as the output is uncertain. A shortage is expected in the Sacramento valley, but this may be offset by production in the coast valleys. The prevailing price on new crop is 14c.

1912 crop	12½ @16 c
1913 contracts	13 @15 c

Live Stock.

Owners of beef stock have shown a little more disposition to sell of late, and most classes of grass-fed cattle are ¼c lower, while calves are down about ½c. Dressed steers, however, are firm.

Grass-fed Cattle—

Steers: No. 1	6¾ @7 c
No. 2	6½ @6½c
Cows and Heifers: No. 1....	5¾ @6 c
No. 2	5¼ @5½c
Bulls and Stags.....	2½ @4½c
Calves: Light	6½c
Medium	6 c
Heavy	5 @5½c
Hogs: Grain-fed, heavy....	7 @7½c
150 to 250 lbs.....	7¼ @7½c
100 to 150 lbs.....	7 @7¼c
Prime Wethers	4¾ @5 c
Ewes	3½ @3¾c
Lambs: Suckling	5½ @5¾c

DRESSED MEATS

Steers	12 @12¼c
Heifers	11 @11½c
Veal, large	10 @11 c
Small	12½ @13½c
Mutton: Wethers	10½ @11 c
Ewes	9 @9½c
Suckling Lambs	11 @11½c
Dressed Hogs	12½c

WOOL.

The market is still quiet. Some sales have been made at the appearing quotations, but buyers are taking little interest at present, and it is doubtful whether new offerings would bring full quotations just now.

Spring clip:

Southern mountain, free..	8 @11 c
Northern, year's staple....	13 @14 c
Humboldt, year's staple....	13 @19 c
do short	13 @14 c

HIDES.

The hide market remains very dull, although wet and dry hides are held at about the same prices as before. Sheepskins, however, are lower, especially long-wool pelts.

Heavy Steers, over 56 lbs.	14 c
Medium	13 c
Light Steers, under 48 lbs.	12 @13 c
Heavy Cows, over 50 lbs..	12 @13 c
Light Cows, 30 to 50 lbs..	13½c
Kip	14 @15½c
Veal	17 @18½c
Calf	17 @18½c

Dry—

Dry Hides	24 @25 c
Dry Kip, 10 to 15.....	24 @25 c
Dry Veal, 5 to 10.....	29 c
Dry Calf, 7 down.....	29 c

Horse Hides—

Salt: Large	\$2.25
Medium	1.75
Small	75c
Colts	25 @50c
Dry	75c @2.00
Sheep Skins—	
Long Wools	70c @ \$1.00
Medium Wool, 6 to 9 mos..	45 @75c
Short Wool, 3 to 6 mos...	35 @50c

Lambs	30 @65c
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HORSES.

A good lot of Nevada horses of medium to heavy weight is coming in this week, and is expected to find a fair market locally, as this class of stock is about the only thing that receives much interest. For the past week there have been no large sales, and inquiry on the part of buyers has been limited, though first-class horses in condition to go to work are sold with little difficulty. Dealers are buying rather lightly in the country, and prices in general are low.

Heavy drafters, 1700 lbs. and over	\$300 @350
Light Drafters, 1500 to 1650....	225 @250
Chunks, 1350 to 1500 lbs.....	175 @215
Wagon Horses, 1250 to 1350....	135 @175
Delivery Horses, 1050 to 1250..	100 @120
Desirable Farm Mares.....	60 @80

MULES.

1200 lbs.	\$200 @250
1100 lbs.	150 @200
1000 lbs.	125 @175
900 lbs.	75 @125

PUBLISHER'S DEPARTMENT.

ADVERTISE YOUR HERDS.

The year so far in California has been unusual from a climatic standpoint. Frosts and a dry winter have hurt crops, but as the season advances we find that more agricultural products will be harvested than was thought possible ten weeks ago. Some localities will have little grain or stock feed, others will have partial failures in fruit, but taken as a whole the State will produce more than enough to feed itself for another year. Perhaps irrigation has done more than anything else to help tide over a dry season. With good alfalfa crops in all parts of the State, stock and dairymen will work out a successful year.

At no time in its history has so much good stock been brought to the State, which means that in a very short time California will not only have plenty of pure-bred cattle, horses, sheep and hogs to supply all needs, but that our breeders will be able to supply countries beyond the seas with what they need and for which they must now go to the East to secure.

Every breeder of pure-bred stock should look forward to the day when he will have fine pedigreed animals to sell. He must get his name before the people who will be in the market to buy what he has raised. The most profitable end of the stock game is selling pure-bred animals for breeding purposes. To have buyers ready when your stock is ready for the market means that some advertising must be done while the stock is being bred and raised.

During the last few years the RURAL PRESS has added thousands of names to its subscription list, men who pay \$2 per year for this journal. Such men buy the best when they go into the market.

From many letters that we have received from our advertisers during the past year, we know that the RURAL PRESS has brought them very satisfactory customers. The paper will do the same for many more, and if you are one of those breeders who expect to have stock for sale soon, we suggest that you get your announcement in our Breeders' Directory column and keep it there. This department is a very effective and inexpensive advertising medium. Send us your announcement; it will be no trouble for us to tell you what it will cost before inserting in these columns.

Among those who will in the future devote a great deal of their attention to the Duroc-Jersey hog is V. E. Breece, of Willows, Glenn county. Mr. Breece imported several fine individuals from the East a year ago, but states that he has been so busy putting his land into shape along with his dairy work that he hasn't had time to give the proper attention to his hogs. He is another example of an Eastern man seeing the opportunity for the pure-bred hog in this State.

United States Government engineers have received orders to begin work at once on the Sacramento river improvement. The first work will be done from Rio Vista to the mouth of the river. The entire improvement, when completed, is to cost \$33,000,000.

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Rate 2c. per word. No order for less than 25c. per week. If you have anything to sell, or want anything, use these columns.

POSITIONS WANTED

WANTED—Position as manager or foreman on ranch. An expert at leveling land, raising alfalfa, handling water and gas engines; good milker, thoroughly understands the care of milk and cream; also the care and breeding of dairy cattle. Will give \$100 for any cow that will die under my care from bloat. Will consider nothing less than \$50 per month. Address Box 12, Pacific Rural Press.

FOR ONE HUNDRED DOLLARS per month, advertiser will work as foreman or superintendent; is thorough in general farming, irrigation, vine and deciduous fruit growing; experienced in working all kinds of labor. Address Box 21, Pacific Rural Press.

WANTED

FARMS WANTED—We have direct buyers. Don't pay commissions. Write describing property, naming lowest price. We help buyers locate desirable property free. American Investment Association, 93 Palace Bldg., Minneapolis, Minn.

CONSIGNMENTS WANTED—Dried fruits, nuts, honey, beeswax, beans, eggs, butter. Our methods are conservative and returns prompt. J. E. LAWRENCE, 326-328 Clay St., San Francisco.

WANTED—Man to join me in raising alfalfa in Glenn county. I have 160 acres of good land, want man to do work and share in profits. Box 28, Pacific Rural Press.

WANTED—Several carloads of good grain hay. Send description and price. Box 144, Sunnyvale, Cal.

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Cents
A
Pound

We have just sold large Plymouth Rock young roosters at thirty cents a pound. Ship us all the Plymouth Rock young roosters weighing one and one-half, two, two and one-half, three and four pounds that you or your friends have. Young turkeys weighing from three to five pounds would also bring thirty cents a pound. Large Plymouth Rock hens are selling from eighteen to twenty cents a pound. We can use all the chickens of all kinds that you can send us. We can also use from one to twenty-five carloads of hay. Five hundred dozen brooms on hand for sale at reduced prices. W. C. PRICE & CO., 209, 211 and 213 Clay St., San Francisco. Established 1876. References: Anglo London & P. A. Bank.

LAND FOR SALE.

155 acres alfalfa land near Colusa and only three miles from steamboat landing on Sacramento river. All deep sediment silt loam, no hardpan or alkali. Perpetual water right goes with each acre. Abundance of water; cost not to exceed \$1 per acre; ½ mile to school and 4 miles from good town where there is a new high school. Land well drained and easily irrigated. Price \$90 per acre; \$4000 cash, balance 10 years; straight loan; interest 6% net. This is a bargain. BROOKE REALTY CO., 807 J St., Sacramento.

114 acres, 2 miles from Suisun, Solano county, 49 miles from San Francisco. Both rail and water transportation. Well improved, beautiful trees. \$15,000, including all cows, horses, hogs, chickens, and hay in barn. 70 acres level bottom land, balance rolling. PAUL GOODLOE, 519 California St., San Francisco.

SEBASTOPOL APPLE AND BERRY LANDS, Sonoma county. Send for booklet telling advantages of investment in this good productive country where no irrigation is required. JOHN F. BYXBEE, Palo Alto, Cal.

FOR SALE—20 acres; 10 acres full-bearing fruit trees; 10 grain. Implements, live stock, furnished house, everything goes. Price, \$5,500. For particulars address owner. No agents wanted. W. TIEK, R. 2. Box 15, Vacaville, Cal.

LAND AND WATER—\$100 per acre. Complete irrigation; Sacramento valley, level; 10 to 100-acre tracts; terms; direct from owners. WATT & CO., 621 Jay St., Sacramento, Cal.

TREES AND NURSERY STOCK

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NURSERY TREES, fruit and ornamental. Nearly all varieties to be seen on our experimental place near State highway. LEONARD COATES NURSERY COMPANY, Morganhill, California.

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PLENTY OF MONEY

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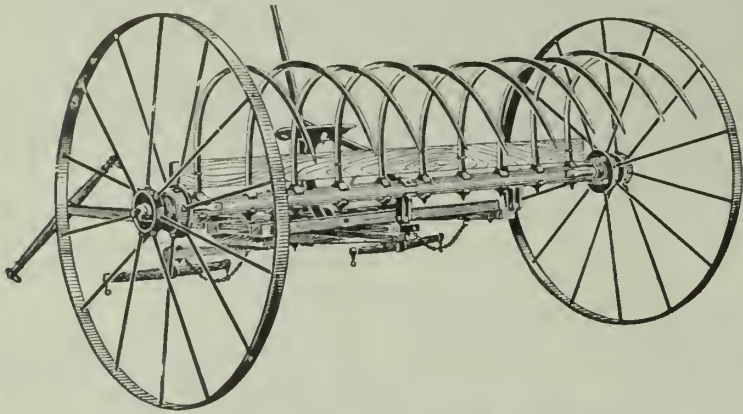
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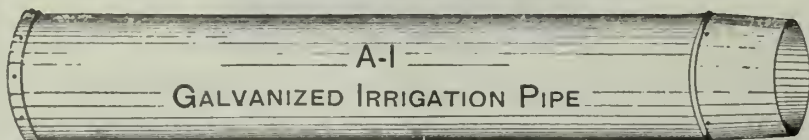
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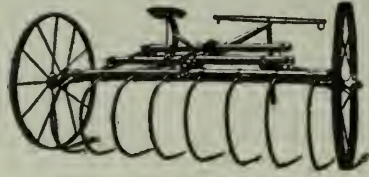
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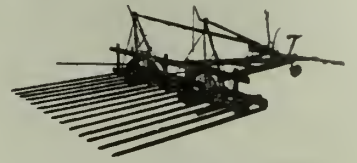
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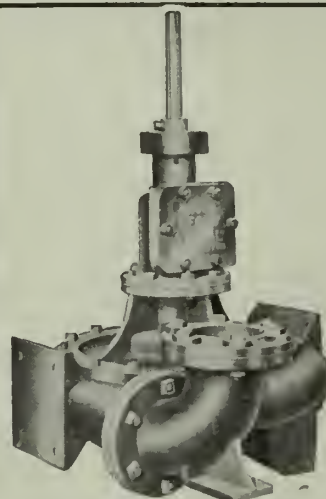


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THE PACIFIC RURAL PRESS

Vol. LXXXV. No. 26.

SAN FRANCISCO, SATURDAY, JUNE 28, 1913.

Forty-Third Year.

Community Agriculture in Italy.

[Part of "Out in the World" Series, by the Editor.]

[In our last issue Professor Wickson told of the assembling of the American Commission at the International Institute of Agriculture in Rome, and of transactions connected therewith. Below will be found observations gathered during the first few days of rural travel in search of co-operation actually in operation and its results. It is the most interesting and instructive description of European agriculture that we have ever seen.—ASSOCIATE.]

As the American Commission reversed the course of Columbus in its voyage of discovery, as already amply suggested, so it also reversed the course of sundry fierce invaders who produced the dark ages. It went out from Rome for the invasion of central Europe, just as Julius Caesar did when he laid the foundation of the Golden Age of the Roman Em-

handles his land by subdivisions of different sizes, each farmed by a family of tenants—the size of the holding determined by the working force of the family. The landlord furnishes everything but labor, and the income from the crops is divided equally between the landlord and the working family, settlements being made usually once a year. The tenants do not expect to become proprietors: in fact, the experts who expounded the situation seemed surprised that such possibility should be mentioned. They were also surprised when asked if the men who actually did the farming could borrow money from the credit banks, because they could not understand what such people needed money for; it was the landlord who was apt to need money, because he had to furnish everything: if the tenant needed cash, he could get an advance from the landlord. Very much was said about the wonderful growth of co-operative credit banks and co-operative supply houses, but it all seemed to be co-operation among the higher-ups and not among small land-owners farming their own lands as the small farmers of the United



Caterpillar Clearing Sagebrush Land.

pire. There is, however, this distinct contrast between times ancient and modern: over 2000 years ago Caesar set forth to get gold from the hoardings of savage people, while today our expedition seeks gold from the wisdom of enlightened nations inhabiting the same territory. Caesar fought his way to conquest through ambush, treachery, and blood. The American Commission proceeds through strewn flowers, banquets, and champagne, and listens not to the war cries of the hostile savages, but to the strains of the Star Spangled Banner, with such variations of it as European brass bands are alone capable of. Such a contrast is suggestive of reflections, but we must deny ourselves indulgence.

A Land of Profit-Sharing.

In scouring northern Italy for co-operators and rural financiers, the American Commission made its first stand at Florence. It plumped down with all its modernity into the midst of palaces and cathedrals from five hundred to a thousand years old, and was interested to find that the only people who lived in the past were the guides and the tourists. The present generation of Florentines is up to date, and though ever ready to turn a penny on the past, that is about the only reflection they make upon it. The Commission assembled in a gorgeous hall which dates back to the high old times of the Medici, but the local rural financiers who appeared before it were only eloquent of New Italy and its foundation upon the prosperity of co-operating agriculturists. In Tuscany the greatest agricultural thing is the landlord, and he

States usually do. It, therefore, did not seem to be a scheme to enable people to own their own homes, but rather a scheme to help large owners to finance a community of tenant families and to increase their

(Continued on Page 706.)

PIONEERING WITH A TRACTOR

An admirable illustration of the efficiency of machinery for ranch work is given herewith, showing sagebrush land before, after, and meanwhile. This is a 60-hp. Holt Caterpillar gas tractor pulling a Holt sagebrush plow on the land of the Goleonda Cattle Co., Nevada. The brush is about four feet high. Previously an attempt was made to clear the land with a 10 by 10 drag, 20 feet long, and hauled by 20 head of horses. The land had to be gone over at least four times before plowing, and even then much of the brush was left on the ground and plowed under to interfere with cultivation for a year or two.

The new sagebrush plow practically cleared 15 acres a day at one operation, and because the grubbers are so constructed that they resemble a shovel plow, the land was also plowed to a depth of three or four inches at the same time it was being cleared. The cost of the work was about \$1 per acre, which everyone will recognize is an exceedingly cheap method of clearing sagebrush land. After the brush has been grubbed by the plow, there is a rake similar to a hay-rake in the rear, which catches the brush and piles it neatly. It is then burned.

Pacific Rural Press

Issued Every Week at 420 Market Street, San Francisco.
TWO DOLLARS PER YEAR IN ADVANCE
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Address all communications and make checks or money orders payable to
PACIFIC RURAL PRESS CO., - - PUBLISHERS
Advertising rates made known on application.
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FRANK HONEYWELL - - - - - Manager
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D. J. WHITNEY - - - - - Associate Editor

CALIFORNIA WEATHER RECORD.

The following rainfall and temperature record is furnished the PACIFIC RURAL PRESS by the United States Department of Agriculture Weather Bureau, at San Francisco, for the week ending at 5 p.m., Jun. 24, 1913.

Stations.	Rainfall Data.			Temperature Data.	
	Past Week.	Seasonal to Date.	Normal to Date.	Maximum.	Minimum.
Eureka .....	.88	35.43	45.98	66	48
Red Bluff .....	.32	18.69	24.99	88	54
Sacramento.....	T	8.03	20.09	90	50
San Francisco...	.02	11.97	22.27	72	54
San Jose.....	.00	6.35	16.79	84	46
Fresno.....	.00	6.22	9.68	96	54
Independence...	.00	4.45	9.53	92	52
San Luis Obispo	.00	7.99	20.51	90	48
Los Angeles .....	.00	12.84	15.64	86	52
San Diego .....	.00	5.90	10.01	78	58

The Week.

For several years, at the close of a volume, it has been necessary to tell how wonderfully the PACIFIC RURAL PRESS was prospering as compared with previous volumes. There is no telling when this will have to quit, but with this issue we again break a record. The volume ending with the last issue of December, 1912, was the largest ever—this beats it out by 48 pages, two full issues of our summer size, having the grand total for the 26 issues of 728 pages. The prosperity indicated is carried all along the line—more subscribers, more advertisers, more interest, better results. Never have things looked brighter for the PRESS, and all signs point to the issue of the last of December surpassing this as this has surpassed, at least in size, the amount of reading and advertising and number of readers, those preceding it.
We call special attention to the index on the back cover of this issue, as on every issue at the end of each volume. The RURAL PRESS is considered the paper of authority where things that should be known can be found. This index is used to point to any subject discussed in the volume, so keep all copies of the paper in their proper order and when in doubt about anything, look it up in the index of a couple of volumes back and find it, or if you don't find it, write in.
A distinct loss to California horticulture is to be sustained by the departure of Alexander C. McAdie, of the Weather Bureau, for Harvard late this summer. The Weather Bureau operates for the benefit of shipping and for the general public. Professor McAdie has made it of outstanding value to the agricultural interests of the State, so that in the public mind throughout rural California at least, the Weather Bureau was considered inseparable in activities from farming interests, other things being of secondary importance. Professor McAdie has been at the bottom of all the work in frost investigation and frost-fighting. He has made patents covering nearly all of the basic points in frost foretelling and fighting and kept those patents wholly for the service of the fruit-

grower. Largely through his work, frost-fighting has reached a point where it is on a good foundation, and California can perhaps spare him better than it could a few years ago. The work he will pursue at Harvard will also be such that it may result in greater public good than a continuance of the work done here. Here's hoping that it does as much good as that he has done thus far!
Again we rush to disagree with some of the conclusions that might seem to be drawn in our reading columns, this time to that hackneyed subject, the wool tariff, referred to in one of our leading livestock articles. The wool trust, if there is such a thing, possibly has been far from angelic in its operations with the wool-grower, the buyers most certainly worked with private agreements, as buyers of any kind will when they get together, and quite certainly the benefits of the wool tariff have not all been to the grower. Schedule K has been deserving of most of the cracks taken at it. But to infer that things will be as good without the tariff as with it, or that Australia cannot hurt the American sheepman, is going on theory without considering facts. If you can lay down Australian wool in Boston for several cents a pound less than American wool of equal quality, tariff not paid, it is too apparent for words that somebody is going to get hurt when that tariff is taken off and the price of American wool will be as low as Australian—and that somebody is the sheepman. The price of American wool all the time has been based principally on the price the manufacturer would have to pay for Australian wool even though the buyer has got in what deadly licks he could, too. The wool-grower may be eased up in some ways by free wool, the world's supply may be diminishing so that free wool will not be quite disastrous, but in justice to the wool-grower and from the standpoint of general public policy, the reduction in the tariff should come by degrees and not all in one fell swoop.
We were too late last week to mention that the State Dairy Association bills, after triumphantly passing both Houses, were lost in the avalanche that was hurled at Governor Johnson to look over and digest in the thirty days following the close of the Legislature. We don't feel badly about it. First, the main purpose of the bills was to prevent radical city legislation by people who knew little of dairying. The great support given the bills will prevent any of that, so the dairymen got what they were after and can feel happy, one and all. For another thing, there was a good deal of regulation in the bills. We have all the regulation we need; we are producing good, clean cream and milk, and are rapidly improving. This partial success of the bills will stop over-regulation and let improvement take its course.
COMMUNITY AGRICULTURE IN ITALY.
(Continued From Page 633.)
products. The only equivalent for ownership on the part of the actual farmer is the fact that these farming families hold the land for decades and for generations, the present tenant farming the land on shares, just as his father, grandfather, etc., had done before him.
It was clearly shown at the meetings of the Commission that owners of farming lands had benefited themselves most notably by many forms of co-operation in borrowing, buying, selling, insurance of live stock, insurance of crops against hailstorms, etc., etc. The business of such co-

operative enterprises had increased, say, a thousandfold during the last two decades. By such efforts the landlords had protected themselves against land sharks, loan sharks, trade sharks, and other such greedy fish, and by getting money at low rates of interest and farm supplies at but little more than manufacturers' prices, they had brought themselves into condition for land improvement and crop increase, the benefits trickling down to the actual farmers by the scheme of profit-sharing. There are, of course, landowners or landlords of various degrees, and the affairs of the whole community were so much improved by the new order of things that nobility, priesthood, and all others except the old-time money-lender and storekeeper, perhaps, proclaimed the beneficence of co-operation and urged government favor to it, and were themselves willing to work zealously for it without compensation, because it seemed grandly philanthropic and promotive of peace, content and prosperity among the people. Grand as all this is, and splendidly adapted as it seems to be to the preservation of ancestral rights in the land and to increasing the comforts of those who in the nature of things cannot expect to own the land, but merely have the traditional right to labor upon it, we can see little which is applicable to American conditions except the demonstration of the general principle that people can change the whole financial face of their environment by acting together in ways which their local conditions must determine.
Co-operative Leasing of Land.
It is interesting to note evidence that this general principle of co-operation has demonstrated itself to be applicable to a wide range of local conditions in Italy. Quite in contrast with the family leaseholds of Tuscany on the basis of profit sharing, are the co-operative leasing of lands on a more independent basis in some other parts of Italy, where the title of much of the land is vested in municipalities, charitable institutions, the church, etc., as well as in the old land-owning aristocracy. In such cases large areas are open to lease on what we call "cash rents." Groups of actual farmers make such leases co-operatively, just as middlemen lease them for sub-letting to individuals. With the latter we have nothing particular to do, except to say that middlemen in Italy act like middlemen everywhere, and people like to escape from their exactions. They do it by co-operative leasing, which is done in two ways: first, by farming on the community plan and pro-rating profits; second, by sub-letting to members of the co-operation, each of whom farms as he likes and pays rent to the co-operative organization. At one of the meetings an expert gave this conclusion from his observation: "Community farming is better from an agricultural point of view: independent farming produces better social conditions." This is what anyone could easily prophesy. Community farming is done under expert supervision and all community members have to choose crops and grow them according to the best known methods—a pooling of wisdom in direction, a standardization of all the operations. Independent farming of subdivisions promotes social peace and amity because every man and his wife do as they like, so long as they pay the rent. You choose which you like according as you may prefer a heavy purse or light heart. However that may be, it is foreign to this discussion. The pertinent thing is that both ways of getting land without the intervention of middlemen is made possible and profitable because such groups of lessors organize in a way to get collective credit and buy stock, sup-

plies and tools at much less than ordinary dealers' prices, and have all the time needed to pay for them, so long as they behave themselves according to the standards of their associates, who lend their endorsement and become responsible for their debts on the basis of what the economists call "true co-operation." There are several kinds of such co-operations: for credit, for buying, for selling, etc., and hundreds, and even thousands, of such little local co-operations having banks, stores, etc., are federated in central organizations which cover the nation in which they are situated. We have no time to mention such local and federated organizations specifically. It would require a professor of modern languages to correctly transcribe their names from our notebooks and from the printed statements which they have prepared for us. All we can do at the moment is to try to get the correct relations and significance of things, and when one is whirled from place to place where the places are almost within gunshot of each other, and where you have to stand up and look pleasant while cordial addresses of welcome are being fired at you in a foreign tongue about once an hour, and you are expected to eat and drink about three banquets a day, the reader can easily see why specifications and detailed drawings are beyond our power. All that we can do currently is in an impressionistic way. This much, however, is distinctly clear. The prosperity of the rural districts of Italy is conditioned on co-operation in finance and trade. Statesmen are keen about it, and the government is determined to fit laws to its needs: philanthropists are moved almost to tears when describing its achievements to you, and landowners rejoice at the progress which it is making in transforming their white-
elephant estate into profitable income properties. Of course, we realize that we are continually getting the higher-up point of view of it all. There is still a doubt whether the lower-downs, who are being so actively promoted, regard it all as the heaven-on-earth which these kind moving-picture artists are showing us. They doff their hats and smile as the imposing procession of "Americanos" threads its way through their lanes and alleys—many of them regarding it probably as some sort of a religious pilgrimage, as the village priest is often the guide, while the local prefect or count maintains a worshipful attitude of respect for the strangers who seem to them so quaintly costumed and so full of adoration.

The North Italian Farming Village.

Wondering, then, how institutions which seem to be working so well for the increased comfort and prosperity of these people might be applied to advancement of Americans who are in spirit, attitude and aspirations so different, we are naturally led to a comment upon a matter of habitation which suggests just as sharp a contrast. The Italian farming village would not be recognized as a village at all by anyone born to the English language. It is not a collection of individual homes, which, though never so humble, has each its individuality of structure, environment and ornament. The buildings of an Italian farming village suggests, on approach, a collection of old-fashioned college or poor-house dormitories. They are brick-shaped in all dimensions, and are so stark and homely as an entire absence of ornament can suggest. They are set close together with scant driving space between them, and as they are four or five stories high, the cluster on a dark day is as dark and dismal as one can imagine. The surrounding lands are better to look upon, as they are parti-colored because of the small holdings of different crops; but the vil-

lage itself is a group of agricultural tenement houses which have not even fresh air to distinguish them from their corresponding city habitations. An American farmer would prefer to install his household under a tree than enter such a building. There may be social advantages in such a collective residence, perhaps, and so there is in a city tenement. There is none of the isolation which is so often regretted in American farm homes, but isolation is much better than its opposite in these collective dwellings which are neither decent nor sanitary.

These farming dormitories are constructed on the same plan as the "palaces" of the city, which are built like fortresses, and both have normally but one large exit and entrance in the center of the front side. Of course, in the old troubled times, a man could not afford to worry whether his neighbor was breaking down his back door, and he therefore built no back door to worry about, and he made no windows on the outside below the second story. There were, however, certain differences between the city palace and the village house. One had most elaborate exterior carvings and ornaments; the other had none whatever. In the palace, the one large doorway led to a wide hall which ended in a large covered court with pillars and frescoes, or in an open court of which the center was full of trees and flowers like the patio of a Spanish hacienda. In the country tenement house the hall ended in the barnyard, with all the paraphernalia thereof: the animals stalled around it, and the family residences in the huddled rooms above. In this way scores of families are centrally housed, the members thereof going back and forth to the work in the surrounding fields. There were, of course, differences in the degrees of cleanliness and comfort of these habitations, but they were of the same class and all of them unfit to produce or maintain an American kind of farming population. The American farmer who begins to feel crowded when a new settler comes within a mile of him, and the American farm wife who glories in the privacy and quiet of her queendom, can picture, perhaps, but never realize the repulsiveness of this tenement life of the European peasant farmer without actual sight of it. It cannot, however, be properly judged from an American point of view. It must be measured from the squalor and poverty of serfdom from which it is an escape and advancement. From the point of view of the landowner, it is economical to pile up people one above another. On high-priced land, to house several hundred on an acre leaves more land for cropping. To him it would seem rank extravagance of land to give ten people an acre to cover with little cottages, barns and vegetable gardens. Therefore, little rural homes for farm laborers are out of the question, and no family can escape from this conclusion because it cannot get money enough to do otherwise, and because also, in certain large regions at least, the head of the family could not buy a house lot even if he should get the money. He could not get land to waste on giving his children a decent place to grow up: he must grow something which the land-owner can get his share from, or which can be sold to pay rent. Children are not a profitable crop like clover for cattle or grazing for geese or mulberry leaves for silk-worms.

But we do not intend to be unfair to south European standards of progress in agriculture and philanthropy. These huddled habitations do have some advantages when you remember that the women have to do much of the field work, and co-operation is helping them marvelously. Think what a great advantage it is, for instance,

to have a co-operative bakery in such a hive of workers. It is not only economical of time and fuel, but it makes possible good sweet bread for all at actual cost, and, by the operation, the whole bunch of people not only saves money, but escapes the pain of living on sour dough which would probably be the best use of flour which the throng of weary women could make. And so, under the leadership of priests and schoolmasters, and with help from the government and the landlords, these people are coming to live better than they did before, and to co-operate not only in baking bread, but in buying everything they use and in pooling their small surplus earnings and their large, kind, sympathetic hearts in helping each other to live better under the sad limitations which surround them. In this way they make banks also, and establish collective credit which is now attracting the attention of the world.

The People's Banks.

So far as we have gone, one thing is clear: European people are not scared of banks, but have apparently a passion for them. We hear talk everywhere that formerly banks were bad. They would not have anything to do with the lower classes, and they did the best they could to get the higher-ups into corners so that they could keep grilling them with high interest and frightful exactions in granting loans. While the banks were doing this with the nobility or the land-owning classes, ugly schools of sharks were lopping off arms and limbs from the dependent class. Nothing we have ever heard of loan-sharks in America equals the cruelty and greed of the European man-eaters of which they are the spawn. Out of the misery of all classes, then, came the wonderful variety of co-operative banks. They are of so many kinds, and they have so many methods of operation, that we cannot now undertake to classify or even enumerate them. Besides, we believe we have other kinds still to see and enquire into. Some of them seem to be as self-denying and altruistic as a foreign missionary: some of them seem to retain their financial presence of mind and do business on what even an American banker would call a good business basis. We are not sure yet that there is so much cheap money available as reference to low-interest rates would indicate, except in cases where low rates are explained by donations by nations, municipalities, communes, or by concessions from financial institutions which allow some of their enormous reserves to be used for patriotic purposes (such as the promotion of agriculture is everywhere conceded to be), and do not forget to tell you that they are doing such things as philanthropy and not as business. We are catching sight continually of something like subsidies or other eleemosynary affairs which connect the present patronage of agriculture backward to the old Roman policy of recognizing the obligation of the state to feed the people and of granting favors to all who would help them to do it, either by foreign conquest or by local food production. From this aspect it may be claimed that the present attitudes of governments toward financing agriculture cheaply may not be very new: it may be only a new way of keeping the people busy and quiet and out of mischief. If so, it is a great success. They like a bank of their own, and it is wise on the part of all those who suffer from popular discontent to help them to get it and to fix things in such a way that they will have money in it—where it will be perfectly safe, even if not very productive of profit.

An Instance of Attitude.

Although we cannot yet tell how many kinds

of altruistic banks there are, and therefore cannot yet enumerate or classify them, we can note one instance of attitude because it is assumed by an institution which is pretty near to what we have in America, namely, a "savings bank." As we note its methods, some contrasts to the attitude of our savings banks toward agriculture may present themselves. It is situated in a city of northern Italy about the same size as Fresno, and has a thoroughly agricultural environment, just as Fresno has. The savings bank we have in mind was established in 1861 with \$25,000 donated by the commune as a foundation, the money having accumulated in the municipal pawnshops in a way we do not understand. It was, apparently, a community charity from the beginning, and when a law was passed in 1884 covering such cases, it was registered as a public utility institution. It issued no shares and paid no dividends. It had no individual head, such as a president, but was governed from the beginning by a board of honorary directors who received no compensation and who were appointed in part by the city government and in part by local charitable and promotional societies. It did not desire to make much money, but simply to pay its very small operating expenses and roll up a good reserve fund for its own uses. It was authorized to receive deposits and to make loans. It began early to aid agriculture, which seemed to be a very clear phase of public utility. Last year it had a capital in the form of a reserve fund of \$1,200,000, and deposits of \$9,000,000. It has, during its more recent wonderful development, at least, not had dealings with individual borrowers, but has loaned upon paper certified by rural banks and co-operative associations, re-discounting bills for them at a rate which gave them a margin of profit to pay their own expenses. It also gave them credit on open accounts. It began with furnishing money for irrigation works, for purchasing improved live stock, and other undertakings which promised greater production and profit to the lands of the region. It made such loans at 2 and 3½ per cent interest, and sometimes without interest for great public benefits. It proceeded later to re-discount bills with two endorses, and when in 1878 the law allowed re-discounting bills with one endorser, it did that business also. It has had \$60,000 on such paper at one time, charging 0.5 per cent less than the Bank of Italy rate for discounting commercial paper. It was interestingly stated that it would make advances on bills for improved machinery, seeds, fertilizers, etc., delivered to farmers, even if the farmer would not sign his name to the bill. The farmers seem to be scared to death about signing anything, but would give verbal agreement to pay. If this satisfied his local co-operative bank or association, the savings bank also accepted it with simply the endorsement of the party making the first discount. In such cases the re-discount rate was 2 per cent for bills of seeds and 3 per cent for bills of other agricultural supplies, while the re-discount rate to other forms of industry than farming was held at 3 and 3½ per cent. Such credits to local agricultural banks were revised every six months, and their credit lines let out or drawn in as seemed desirable. It had to be clearly demonstrated that loans were strictly for agricultural purposes, and 2¾ per cent was charged to borrowing banks, which charged the farmers 3½ per cent, leaving them 0.75 per cent to cover the cost of their own operation. On paper of this kind for current supplies to farmers, the savings bank has had as much as \$150,000 out at one time.

On workmen's small deposits this bank has paid

4 per cent, while it paid 2¾ per cent to other depositors. Now it has increased its interest on deposits to 3 per cent in competition with other banks which needed money. When it was pointed out to the beneficent officers, who were giving the facts, that they were loaning money for lower rates than they were paying depositors, they remarked that a large reserve fund was a good thing and reminded us that they were running a public utility concern as provided by the law. They also pointed with pride to the statement in their report that they had given away from 1896 to 1912 the sum of \$32,091 for prizes and other encouragements to agriculture and \$12,500

as a contribution to the cost of traveling instructors in agriculture. We were forced to conclude that all the angels in Italy are not sculptured on the walls of their cathedrals.

Possibly if some hard-hearted California bankers happen to read this account they may conclude that we must have struck a freak bank or that we are a freak writer. For these reasons we cannot go further at this time, but have to promise them that they are mighty likely to get more of the same kind later, for it does appear that in the line of cheap money to farmers everybody seems to be doing it, or claims to be, and it bothers us some to accurately weigh and measure it.

Heavy Pruning Best.

(In the discussion in these columns some weeks ago the almost unanimous sentiment expressed was, "Lose the shears for a season," but in the following communication from one of the most experienced growers living, whose name unfortunately we cannot use, the idea is strongly advanced that the heavier the cutting back, the better the tree. As a matter of fact the course of action is apparently based largely on the principle: "We hardly know what to do, so we better do nothing." The following seems to be based on experience years ago.—Editor.)

To the Editor: Permit a word concerning the treatment of citrus trees under frost damage; when to trim a lemon tree is not so much a matter of time as it is condition of the tree. The sooner the better after the damage, and just at the time a good flow of sap may be had in the uninjured wood.

Do you remember the lesson taught in this line, along in the nineties, when so many lemon trees and various kinds of orange trees were all budded to navels? The successful budder of that day demanded his tree to be in condition of free flow of sap and called on the grower to help by irrigating, fertilizing and reducing the wood surface to get it. The earlier he could obtain this condition the better, as it insured a strong and vigorous growth for a long growing season, and well seasoned wood to stand the next winter's frost. If this principle had been acted on this winter and spring the lemon orchards would be a year in advance of where the most of them are now.

As to the orange trees. Do you recall the citrus growers' meeting at Pomona some years ago? There was given out at the time many views by many men. Among them was the statement that certain old orange trees always having had good care, were gradually falling off in their producing ability and general vigor. The remedy advanced was a liberal use of the pruning shears. One then was, who went so far as to cut out the entire top of his orange trees. This was so radical that the idea became unpopular and seems to have been lost sight of. But the treatment as intended was right and is right and applicable just now to thousands of acres of poor, decrepit orange trees, which if they had enough of the sickly wood evenly taken off all over the tree to insure a healthy, vigorous new growth, would prove the salvation of the trees.

I volunteer the above for you to use in any way you please, so you do not connect my name with it. I have been citrus fruit growing here at for twenty years. I sold out two years ago. I am just recovering from a long sickness, and I have not the strength of pen or pruning shears to demonstrate my position against the do-nothing treatment practiced this year and which is the most costly business the growers have followed since for year after year they acted on the belief that distillate spray was the cheapest and the best treatment for black scale.

The interest I want to awaken in the industry is that the free use of the pruning shears is absolutely necessary to restore thousands of trees that can not be profitable until a new and vigorous bearing surface is created and that no other treatment will do it so well, if at all. It is begging the question to call the lemon tree in Fig. 2, page 664 of the Press a trimmed tree in this 1913 year.—Grower, San Bernardino County.

TO KILL JOHNSON GRASS.

To the Editor: Could you tell me the best way to kill some Johnson grass on my ranch in Contra Costa County?—H. A. C., San Francisco.

Johnson grass has the reputation of being so hard to kill that any simple method of eradicating it is generally looked upon as being worth nothing, yet it is stated that it can be killed easily in one season by running a weed cutter under it at just the right time. The grass of one year comes from the root stock formed the previous year. It does not come from the real roots, the fibrous one like every plant has for gathering food, nor from the old underground stems, but from those meaty joints about the thickness of one's finger. The proposition is to tackle it just when these are ready to form. They form only after the grass has made a good growth and stored up a lot of strength. This is just when the plant is starting to flower out. It is said that if the weed cutter can be run under the crown at this time, severing the upper growth from the genuine roots that the eradication will be complete. The roots then will be so far along that they cannot start up new growth and the food of the upper part of the plant cannot get where reproduction can take place. If the cutting is done too early the roots will start up again. If it is done too late the new root stocks will have gotten below the knife blades and can start growth vigorously the following year. Thus it has to be done just at the right time to be effective and very probably most of the disbelief in the effectiveness of the work is due to the fact that it was done either too early or too late. An examination of the roots just when blossoming starts will show the new root stock and what is needed. As some plants are always a little ahead of others it is fairly certain that in every job that there will be a few that will escape and these few the following year will have to be grubbed out.

Cultivating to expose the root stock to the weather during winter or during the hot summer is practiced. Also exposing them to sheep or hogs, but nearly all such methods are unsatisfactory, and it is also very difficult to make a clean job by rooting up bodily and destroying every root stock in a field or orchard.

CROSS POLLINATION OF CHERRIES.

To the Editor: I have of late purchased your book on "California Fruits and How to Grow Them," and beg of you to answer one question for me. I have 20 acres in Vacaville and expect to set out quite a number of cherries. I see in your book, page 261, that you advise the association of different varieties. Would it be advisable and wise, in your estimation, to associate the Royal Ann, Burbank, and Black Tartarian, setting them out row for row? Also, would it be advisable to associate the Royal and Blenheim apricot?—T. C., Vacaville.

Although Professor Wickson is in Europe, we feel quite sure he would agree with the following answer. The three varieties of cherries you mention, planted as you intend, would give sufficient cross-pollination to insure a crop, other conditions being satisfactory. It is not necessary to plant the Blenheim with the Royal or the Royal with the Blenheim for purposes of pollination. You can grow them alone or together.

Growing Fall Potatoes.

[Written for the PACIFIC RURAL PRESS by
W. T. KIRKMAN.]

Most every Easterner settling in the San Joaquin or Sacramento valleys has much to learn about growing the Irish potato. Some have learned by sad experience some important facts which many of the older farmers have known for a quarter of a century.

Here are two facts generally ignored by the Easterner. Potatoes will not grow well in our hottest months (July and August), hence they must be planted early in February and March, so they will have May and June to mature in.

In the second place, this early summer crop will not keep long and must be disposed of at once.

An Eastern purchaser on the plains in this country conceived the idea of making some "quick and easy money," while other things were coming on. He seemingly thought his neighbors very non-progressive, as they neglected so great an opportunity. The fact that he had to pay over 2 cents a pound was his strongest evidence that there was money in potatoes. Eighty acres of potatoes is quite a venture under best of conditions. His chief confidant in his scheme by which he was going to show the mossbacks a thing or two was his merchant, of whom he bought his potato seed. However, this merchant agreed to take all merchantable potatoes at digging time at prevailing prices.

They were planted late on high, dry, stubble-land, without much preparation, with the result that the merchant got no potatoes. There was not a sack of merchantable potatoes raised.

In contrast to this failure, there are many instances in this valley of good crops being grown in a commercial way in early summer. Most every farmer grows enough for home use as long as they will last, and buys the shipped-in product for the balance of the year.

This preamble leads me to the subject which I started out to write about:

Growing the Fall Crop of Potatoes.

Growing the fall crop of potatoes in the interior valleys of California is but little understood by the majority of farmers. There are several stubborn difficulties in the way of success.

Water in some localities is unavailable for flooding the ground, and it is often very difficult to get a stand to come up, even when properly planted. The new crop seed often lies dormant or rots. Old seed from cold storage rots badly when transferred to the soil under a July and August sun.

During my twenty-five years here in the nursery business I have experimented from time to time in this fall gardening. As there was usually some land being prepared for the next year's planting, it was not much extra labor to put in a potato crop, and even when I got only one-eighth to one-quarter of a stand I felt repaid for the undertaking, as the seed was worthless for any other purposes, being culls and gleanings from the big rotting heap of the early summer crop.

Last summer I pursued a course that was so satisfactory in obtaining an almost perfect stand that I expect to try it on a much larger scale this year.

I conceived the idea of sprouting the potatoes and transplanting somewhat after the manner of sweet potato planting. I procured a quantity of well matured small early rose potatoes. I spread them in a plant shed, one and two layers deep and covered with two or three inches of sand. One part I covered with sawdust (old chaff will do). I kept this bed well watered by using the sprinkler on it daily. In three or four weeks sprouts began to appear. These I extracted carefully with the parent potato attached and planted at once. I went through this bed at intervals of a week apart, four times. For each of these plantings I had to flood a strip three or four days in advance, and as soon as the ground was broken and hoed, the plants were set by line and the ground firmed at base around the tubers by hand. They were inserted about five inches deep, the tops in most cases being covered loosely. On good potato land, this flooding and plowing when the ground is fully damp and yet in good pul-

verizing order and subsequent shallow cultivation insures moisture for a crop.

As before remarked, this industry is understood by few, and there is but a limited supply of this superior product to be had in the fall. Around Badger Flat, in Merced county, there are some planters who have been very successful. They grow mostly the Freeman potato. W. F. Clark of Merced also had the "secret" and practiced it profitably, until his friends made him tax collector.

With a better understanding of this phase of farming, together with the increasing number of pumping plants, there ought in the near future to be a revolution in potato trade here.

We cannot quite dispense with the shipped-in product, but we can confine it to about four months instead of nine or ten months as at present.

EUCALYPTUS NEAR LINE.

To the Editor: I have been intending to set out a row of eucalyptus and eypress trees, three feet from the western line of my property, situated between Petaluma and Sebastopol, as a windbreak for protection of my young apple and cherry trees, but have been informed by one of my neighbors that a law passed a couple years ago prohibits setting out the trees within forty feet of the property line unless permission is received from the owner of the adjoining property. Could you tell me whether or not I have been correctly informed; also what legislation there has been on the subject, if any?—C. H. H., San Francisco.

(Answered by our local attorneys.)

There has been no such law passed as that spoken of. The only California statutes on this general subject are the following: "Trees whose trunks stand wholly upon the land of one owner belong exclusively to him, although their roots grow into the land of another." And "Trees whose trunks stand partly on the land of two or more coterminal owners belong to them in common." You have a right to plant the row of eucalyptus and eypress trees near the property line as a windbreak for the protection of the orchard, and, though it has been held that one owner may enjoin the adjoining owner from planting trees near the boundary line, an injunction would lie only when such a planting would be injurious to the former's land and, moreover, unnecessary.

ORNAMENTALS FOR MODOC COUNTY.

To the Editor: I would like it very much if you could give me a list of the varieties of berry and flowering bushes and vines of any description that are useful or ornamental that would be especially adapted to this section for planting around the barn or ranch house, also any fruit trees that would do well in this climate. How would eucalyptus trees do here in this climate? Is the winter too severe and long?—Rancher, Modoc county.

Any of the berries except perhaps the loganberry will do well in your climate and provide the useful plants. Any ornamentals that will do well in the East will do well with you. The list is so long that a person would be lost in a quarter of it. Lilacs, syringia, Japanese quince, wistaria, and the flowering crab are some that are popular wherever grown, will do well with you, and will be liked. Eucalyptus stands no chance on earth to survive your winters.

DROWNING MORNING GLORY.

To the Editor: I have a patch of morning-glory on very fertile land. I am trying to drown it to death, if possible, and have built a dam around this pestilence and am covering the earth with considerable water. If this water does not spread too much, or otherwise injure the surrounding land, I shall continue to soak the morning glory for some months. My neighbors differ in opinion as to the efficiency of this proceeding. Have you records of any similar attempt?—Ignatius, Solvang, Cal.

We have no record of any similar attempt to eradicate morning-glory, and hope anybody that does know any place where it was tried will speak up at once. However, would say that there are good reasons for believing that this will kill the plant provided the water stands on the spot continuously and does not give the plant a chance to reach daylight, for keeping morning-glory below the surface of the soil for a full season has generally killed it. Of course, by cultivation the starch in the roots is exhausted by the repeated attempts to reach daylight, and by covering with water it is improbable that the starch would be used up in this way.

FILLING A SLOUGH.

To the Editor: Will you kindly publish in the columns of your paper where I can get information regarding filling in a slough? The proposition is this: There is a slough near my place which empties into a creek and carries off the overflow during a wet season; the owners of the land propose to fill in the slough, which would prevent the water on my land draining into the creek, and during a wet season would cause the water to stand and kill the young fruit trees.

San Francisco.

SUBSCRIBER.

ANSWER BY A. E. CHANDLER.

I very much regret my delay in answering your letter of June 2nd, enclosing an inquiry from a subscriber regarding his legal right to protection against the filling of a slough. I am returning herewith the subscriber's letter. The debatable question in this case is probably one of fact—that is, as to whether the so-called "slough" is a natural watercourse. If it really be a "slough", there is no question but that it is a natural watercourse, and that it cannot be obstructed by the lower owners to the detriment of the upper owners. The following extract from the case of *Sanguenetti v. Poek*, 136 California 466, is clear on this point:

"A defendant had no right to obstruct a drain-way as against the flow of water accumulating on upper land from rainfall, without first providing a ditch, or canal, of sufficient capacity to carry such water as the water-way was accustomed to carry to relieve plaintiff's lands."

ALFALFA IN IRRIGATING DITCH.

To the Editor: I would be very much obliged to you if you would let me know how to destroy alfalfa in irrigation ditches. We tried to do it with a shovel, plow and cultivator, but without any success.—H. W., Red Bluff.

If anyone has found a quick and inexpensive way to kill alfalfa in irrigating ditches, and many people must have, they would do a public service by telling others about it. As a venture, we would say that a coating of crude oil would do the business, or if a person wanted to put a small amount of oil on the crown of the plant after cutting off the top, that would do the business also.

The party of nurserymen from California who attended the National and Coast Nursery Association meetings held at Portland, returned home Monday of this week. The meetings were pronounced successful from point of attendance as well as interest. A committee of seven was appointed and funds raised to pay the expense, to prepare a bill for the unification of State quarantine laws, which, if it can be carried into effect, will make for better conditions in the nursery trade as well as for the fruit-grower. The next annual meeting is to be held at Toronto, and in 1915 it is expected to be held at San Francisco.

Next week we expect to publish in our columns a summary of the deciduous fruit prospects in this State. Returns already received from our correspondents indicate a better yield than was thought possible six weeks ago. From 21 reports in hand, the condition of the apricot crop is placed at 51 2/3% of a normal yield. From 24 apple-growers, a yield of 64% is indicated. Peaches may reach 63% of a crop, pears 59%, and prunes 59%. Reports yet to come will doubtless make some changes, but the facts are that California will raise fruit this year.

Financing Co-operative Marketing.

To the Editor: The use of money in conducting the marketing of products are two-fold; one constituting a permanent investment in property, the other the amount necessary to finance the seasonal movement of crops. For the latter purpose, certificates secured by farm products would be substituted for money. These certificates should be made redeemable in either products or legal money at the option of the association, this latter provision to protect it from bankers as I explain further along.

These certificates given to the farmers in exchange for their crops should be written in terms of dollars and cents and in denominations suited for currency so they could be used largely in the place of money and could be exchanged for legal money in cases when only such would answer their purpose. Such receipts would circulate in exactly the same manner that the bank certificates circulated during the panic of 1907. The security is even better than the security offered by the banks at that time.

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If bankers and money lenders discriminated against farmers certificates, the association could exact enough more legal money than farmers certificates to bring them to par. It would be a case of buy or die and the bankers' stomach would probably spoil sooner than the farmers products. If the association held resolutely to the policy of making the money buyer stand a discount equal to the discount forced by the money owner upon the holder of farmers certificates a perfect parity between them could be maintained.

To make the plan successful, and indeed to get the most out of co-operative marketing, the greatest possible proportion of the total agricultural production of the United States should be handled under one association. The system should be so comprehensive that every community should have a receiving and a marketing branch. The marketing branch could act as a local fiscal agent for the bonds mentioned in my last letter.

Such an organization would need a general manager, assisted by department heads, possibly district managers and certainly a local manager in each community. The local manager would have under him two foremen, one over the buying and the other the selling branch. The general office would course require the service of various experts, such as transportation, insurance and statistical.

Such an organization would, I believe, market farm products, far more efficiently than either the middleman or the many independent organizations now marketing various farm products co-operatively could do it.

I am not familiar with the plan of organization of the various co-operating organizations, but see no reason why all could not be combined to form a basis for a new organization. Failing in that, one like the Farmers Union could be used on as a last resort, a totally new organization could be formed.

Now, Mr. Editor, this is all I have to say on the subject of co-operative marketing of farm products, and I desire to thank you for the space accorded me.—
W. O. Retherford, Oakley, Cal.

THE POWER FOR PUMPING.

To the Editor: What horse-power is required to run a 3-inch pump with a lift of 12 feet from the bottom of pit to point of delivery? Would also like a table showing the horse-power necessary for lifts ranging from 10 to 50 feet.

Merced county. RANCHER.

ANSWER BY F. W. KERNS, SAN FRANCISCO.

The following table gives approximately the horse-power required for various lifts from 10 to 50 feet. The column headed "Lift" is the height the water must be raised, or the difference in elevation between the water-level in the pit and the point of delivery. To this "lift" should be added the friction head due to loss by friction in the pipe, valves and bends; this varies with the length and size of pipe, velocity of water, etc., but for ordinary conditions it should not exceed 10% of the "lift." The sum of the "lift" and friction head is shown under the column headed "Total head." Under the column headed "Net hp." is shown the horse-power necessary to raise the quantity of water delivered by a 3-inch pump, provided there were no loss in the pump; and under the column headed "Shaft hp." is shown the actual horse-power required at the pump shaft of a reliable 3-inch pump to overcome the "total head" and the losses in the pump. If a motor or engine is direct-connected to the pump, the last column gives the

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horse-power they must be capable of delivering; if a belt is used, the last column should be increased by about 10% to allow for the loss of power in the belt.

Lift.	Total head.	Net hp.	Shaft hp.
10	11.0	0.6	1.1
12	13.2	0.8	1.4

15	16.5	0.9	1.7
20	22.0	1.3	2.3
25	27.5	1.6	2.9
30	33.0	1.9	3.4
35	38.5	2.2	4.0
40	44.0	2.5	4.6
45	49.5	2.8	5.2
50	55.0	3.1	5.7

Growth of the University.

A few weeks ago in the editorial column we referred to the marvelous growth that was being made by the agricultural department of the University of California, also mentioning that this was the second largest university in the United States.

Along comes a letter which says: "You state that the University of California is the second largest university in the country, but do not state what the largest is. Could you not give us a few figures for comparison?" Hence the following.

The largest university in the United States is the Columbia, in New York, with something more than 9000 in attendance. The exact figures we have not on hand and more information on the subject anyone who is interested will have to get from Columbia itself.

In the University of California there were enrolled during the year ending with the term just closed 7695 students, registration in the Summer Session.

Hastings College of Law and other colleges not located at Berkeley but yet administered as part of the university, being included. In this figure are included names of persons who attended both the Summer Session or the colleges above referred to and yet were enrolled for regular university work, thus being counted twice. Omitting such duplicates there were 7132 different individuals attending the university during the year just closed. There are not included students in short courses or agricultural extension work.

The number of instructors and officers of the university amounted to 653, quite a town full by itself. Leaving out the

Summer Session and the parts of the university away from Berkeley, the enrollment was 4687. An idea of the growth that this indicates is shown by the fact that in the year of 1909-10 there was enrolled only 3352 persons, and in 1903-04, 2669 persons in the university proper.

The University of California is not only second in size of the universities of the United States, but is second among the universities of the world.

Taking the standing of the universities on November 11, 1911, Columbia came first, California second, and then followed Harvard, Cornell, Michigan, Chicago, Pennsylvania, Wisconsin, Illinois and New York. The standing will be similar now.

The College of Agriculture provides the striking fact in this growth. The engineering colleges have actually decreased in size of recent years, the others have gained somewhat. Thus, while the growth in the general culture colleges was about 23 per cent in two years, that of the College of Agriculture was 88 per cent. About 13 years ago, in 1900-01, there were 42 students in the College of Agriculture, last year 372, besides a very large attendance of students in other colleges in agricultural courses.

SUMMER SESSION.—One of the most important features of university activities is the Summer Session, which is held while the regular students are away on their vacations and is arranged so that school teachers and anybody else who is unable to attend at the regular time may get university privileges.

There are also fewer requirements for admission and almost anybody with ordinary intelligence and sufficient training to get full benefit from the courses may enroll for a small fee, \$15. Professors and instructors from many other universities are secured to give courses, so that a person can get the benefit of instruction from some of the most famous men in America and in some cases in the whole educational world, who could not be secured permanently for large sums. Nearly half as many persons are in attendance during the six weeks of the Summer Session as during the regular terms and the former deserted look of the campus during summer is gone for at least half of the regular vacation period.

CORRESPONDENCE COURSES.—One of the most important things about the whole university to the average farm resident is the establishment of correspondence courses, which have been all laid out and will begin shortly.

This is one of the best things for the farmer that can be. Comparatively few boys can go to college for an agricultural education and not many to a farm school like that at Davis. The learning of many of the scientific facts about agriculture can be taught by correspondence perhaps better than at the university where one is removed from farm work and does not see what he is studying. The home student of agriculture thus has a big advantage over the correspondence student in electricity or some such subject.

The university requests that all interested write in at once so the proper plans can be made. The fee will be small and the courses excellent. It is to be hoped that as big advance will be made in this as in the regular college work.



PROFITS ORCHARD CANNING

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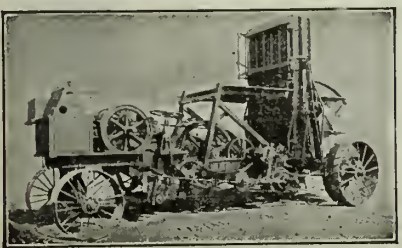
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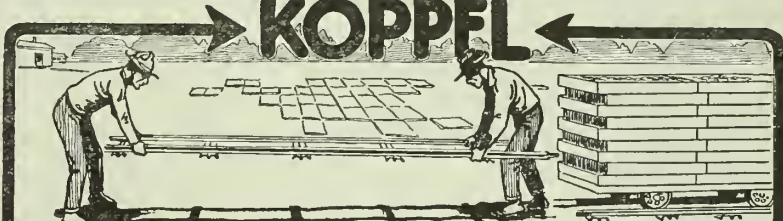
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KIRKMAN NURSERIES, Fresno, Cal.

The Orange in the West Indies.

[Written for the PACIFIC RURAL PRESS by
LEWIS R. FREEMAN, Pasadena.]

(See Last Issue.)

Theoretically, Porto Rico figures out at pretty nearly the ideal orange country, and, theoretically, it can be demonstrated that if all of its available land were set out to oranges and carefully tended, that California and Florida growers would be crowded out of the Eastern market inside of 15 years. This latter event will probably be indefinitely deferred, not because Porto Rico cannot raise high class oranges and put them down in New York and most of the ports of the Eastern seaboard at a fraction of what California and Florida can do, but because there is nothing to indicate that this island will ever have a sufficiently great number of sufficiently intelligent growers to allow the Porto Rican citrus industry to realize its undeniable possibilities.

Prof. Wickson has remarked in his valuable work on "California Fruits," to the effect that the class of people raising oranges in the United States is, generally speaking, more intelligent and progressive than that of those engaged in any other considerable industry. It is because Porto Rico, for a number of reasons, will never attract a large population of this kind—because the most of its educated white population is more or less transient—that the product of its citrus groves is not likely ever to prove a serious competitor of those of California and Florida in the American market. A survey of that island's possibilities as a producer of citrus fruits and of the manner in which an attempt is being made to develop that industry may, nevertheless, prove not uninteresting to the California grower.

Besides any natural advantages which it has over the rest of the West Indies as an orange growing country, Porto Rico is placed beyond the danger of competition with them by being able to enter its fruit into the United States duty free, an advantage, however, which will be somewhat scaled by the new tariff. Over California and Florida, with which it competes on equal terms as regards duty, it is generally credited with the following advantages: (1) Immunity from frost; (2) low price of land; (3) cheap and abundant labor supply; and (4) low freight rates to the markets of the northern States. These are all points that would tell heavily, for a time at least, if ever the Porto Rican industry got out of its swaddling clothes.

Freight rates are, perhaps, the most important item, for land and labor are likely to remain cheap only as long as the industry is comparatively unprofitable.

The freight on a box of oranges from Porto Rico to New York is at present about 28 cents, while Havana pays 35 cents and 56 cents duty. Freight rates are considerably higher from the southern ports of Cuba. The rate for fruit grown in the States is 60 cents a box from Florida to New York, and 98 cents from California. This gives a good margin for the Porto Rican growers to work inside of. The California rate will, of course, undergo a considerable reduction on the opening of the Panama Canal, but it must always be considerably higher than from Porto Rico on account of the great difference in distance and actual cost of transport. The Porto Rican rate may also become more favorable with the growth of the industry. At present there are but two or three regular steamship lines from the island to New York, providing a joint weekly service. The growth of the orange industry to anything approaching that of bananas in Jamaica and Central America, would of course, be followed by the employment of specially equipped fruit steamers; and a much cheaper and better handling of shipment.

As to the orange growing industry itself, its present conditions and the opportunities it offers as a business venture, it may be regarded as in its earliest infancy. There was no cultivated citrus fruit of any description on the island up to the time of annexation, nor, in fact, for several years afterward. Today there are probably over 10,000 acres set out to trees, and this substantial nucleus is being added to at the rate of about 1000 acres a year. The oldest of the orchards are just coming into bearing, so that no shipments large enough to serve as any kind of an index of how the fruit is going to be received in the American markets have been made. It is, in fact, probably owing to the cheapness of wild oranges that, as yet, it is rarely seen in the local markets and fruit stalls.

I have been shown fruit that appeared to me to be of a very high class from some of the young orchards of Porto Rico, and on my trips around the island I saw a good deal more that was not so good. It is only fair to say that in the latter instances it was almost invariably the grower that was at fault for the quality of the fruit, and not the land, climate or other natural conditions. As I have already intimated, it is the lack of experienced growers in the island that is going to stand most in the way of the rapid advance of the citrus industry.

I have no doubt that there are numerous instances in both California and Florida where totally inexperienced but energetic and intelligent men have come to the country and done exceedingly well with oranges. I know of a number of such cases myself in California, but their way was made easy for them by the fact that they had scores of neighbors—many of whom had grown gray in the business—to whom they could tell their troubles and get sound advice on five minutes notice. In Porto Rico a newcomer has to come pretty near to going it alone as far as obtaining advice worth following from his neighbors (most of whom are groping in the dark themselves) is concerned, and unless he has learned the salient points of the business somewhere else, he is not likely to have success as a companion in his loneliness.

A single instance of the ways of budding—I use the term figuratively—orange growers in Porto Rico will suffice. The one I have in mind had been a fairly prominent railroad man in Connecticut, and for the sake of his health had been



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Last season we sold over a million Protectors to deciduous planters, and they find it was money well spent. You know that rabbits, hot sun, sand storms, raking of bark in cultivation, etc., always causes a loss that will many times more than pay for the Protectors to protect your whole planting. Let us sell you Protectors. We have the only Perforated ones made. Write for sample and price.

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sent for 10 years' sojourn on the ozony windward shore of Porto Rico. His natural energy would not allow him to remain entirely idle, and oranges looking good to him—just as they have to other people in other places—he decided to take a chance.

This gentleman, Mr. M—, was introduced to me in a San Juan hotel as one of the leading orange growers of the island, and after hearing him discourse for a quarter of an hour on the future of the Porto Rican orange in the American market, I very readily accepted an invitation to accompany him home by that evening's train and take a look at his orchard the next day.

We arrived too late to see anything that night, but the next morning I awoke to behold from my window one of the most pleasing scenes of tropical loveliness I ever looked upon. Acres and acres of evenly set, glossy-leaved bananas, stretching as far as the eye could reach, coquetting with each other with graceful curtesies and ducks and bows and nods, as the gusty northeast Trade, coming in fitful squalls, ran in waves across their lipping leaves. The same prospect was unfolded to me from the bathroom window on the other side of the house, and again, when I went down to breakfast, from the dining room, which had still another exposure. All of which led me to remark to M— that I supposed that the orange grove was back in the better drained and protected land along the base of the hills which I saw rising toward the interior; to which M—'s only answer was to smile—a smile like that of man who has something up his sleeve—and continue dishing out the fruit. The latter, by the way, was not oranges or bananas, but some amazingly good strawberries which had come in by cold storage on the last Venezuelan boat.

Immediately after breakfast M— announced the start for the orange grove, and I was more than a little disturbed to observe that the horses had not been brought up. Those hills looked a good three miles, and my legs had been paying tribute to British Guiana malaria for too long to relish an encounter with half that distance, let alone coming back.

"Was the orange grove very far?" I asked timidly; on which M—, seeing my perturbation, smiled more broadly than ever, and at last let his secret out by telling me that the orange grove was down among the bananas, or at least had been there last Thursday—one of his men had seen a tree while looking for a lost colt. Evidently M—'s sense of humor was keener than his sense of agriculture.

(To be Continued.)

AGRICULTURE IN THE FOOT-HILLS.

Several weeks ago there appeared a question in these columns regarding fruits and grasses in the Sierra foot-hills at an elevation of about 3500 feet. The following letter from El Dorado county perhaps was not written with that in mind, but will throw some light on the subject:

To the Editor: The soils throughout this section of country are of a rich, red, decomposed slate, or red Sierra loam, as it is called: It is frequently very deep and porous, and it appears to be of a very productive nature.

Alfalfa does far better on the slopes than on the bottom lands, the soil being so porous that it does not require checking, and yet is of such a nature that it does not wash when irrigated.

Red clover and rye grass are mostly grown on the bottom lands of these little valleys with great success.

Grain hay of all kinds (rye, wheat,

oats, and barley) is also grown to a great extent and is of a particularly fine quality, although most of this hay is fed to stock during the winter months.

Fruit trees of different varieties are also grown throughout this section, both on the slopes and lowlands. The different varieties of the English walnut are grown here and there, with the greatest success as to their yielding and growth. There are enough trees grown here to prove its merits. Apples and peaches also

do well here. Cherries, pears, and plums are grown to a greater extent, to ship green; but as a matter of fact, transportation is not as good as it might be. For growth and bearing qualities, the black fig and the walnut, in my opinion, do the best here. Conditions seem perfect for these trees. There is no doubt in my mind but what the fig and the walnut industry could be carried out successfully in this locality.

E. P. R.

Greenwood.

SEE THE DIFFERENCE

These two bunches of grapes were picked in the same vineyard, both from the same kind of vine.

THIS VINE IS STARVING TO DEATH

On the other hand

THIS VINE HAS BEEN FERTILIZED

Is there any need of our asking Which is the more profitable?

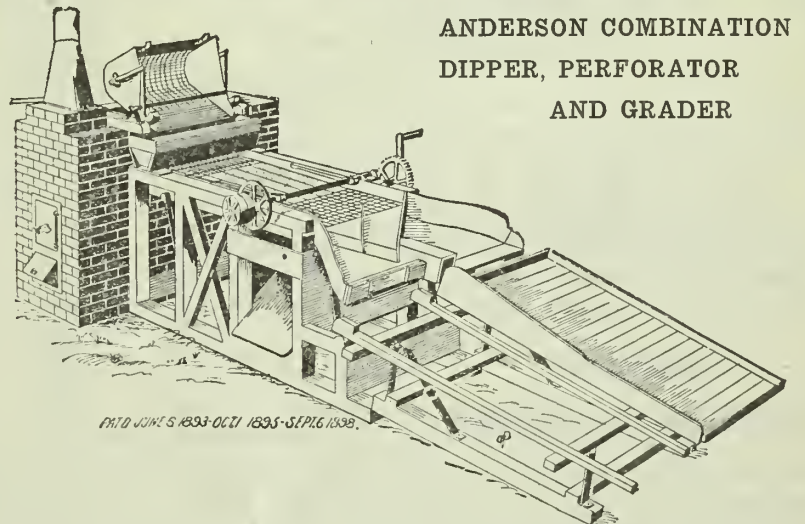
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For the half year ending June 30, 1913, a dividend has been declared at the rate of four (4) per cent per annum on all deposits, free of taxes, payable on and after Tuesday, July 1, 1913. Dividends not called for are added to the deposit account and earn dividends from July 1, 1913.

GEORGE TOURNY, Manager.

AGRICULTURAL REVIEW.

With the Fruit Men.

A dispatch from Hemet, Riverside county, states that the fruit crop is large there. Work on drying and canning apricots has commenced, and this fruit will be followed by a big crop of peaches.

The new Dried Fruit Company, a new co-operative fruit-marketing movement, with headquarters at Fresno, is going ahead quite rapidly. It is now planned to handle part of the 1913 crop of peaches and other fruit, provided that enough membership can be secured and \$250,000 raised by September 1st.

Horticultural Commissioner H. P. Stabler, of Yuba City, has recently received from Mexico 1000 avocado (alligator pear) seed, and in connection with other parties there has commenced planting them, with the intention of introducing this fruit into that section.

W. H. McNamee, of Thermalito, Butte county, has a fine crop of Adriatic figs, for which he states that he has refused \$80 per ton. He expects to receive \$100 per ton.

Picking and packing of Tragedy plums for shipment commenced at Hanford last week. It is expected that peach shipments will commence about July 15th.

The first of the Bartlett pears to be sent East this season were picked at Yolo last week. Now the shipments of this variety are from several sections, and the season will soon be at its height. Good prices are being received in the East on all varieties of California fresh deciduous fruit.

Dispatches from Fresno state that the California Associated Raisin Co. has made contracts with the Pacific Coast Seeded Raisin Co. to have the use of the latter's plant at Fresno this season. It is further stated that as the largest concern of packers has contracted with the Associated, other packing companies are making arrangements to work with the growers' organization also.

It is announced that the Hunt Bros. cannery at Gridley is to close down for good at the end of this season. Lack of variety of fruits is given as the cause.

Increased Production.

The annual report of the California Development Board for 1913 has just been issued. The report goes into details on many subjects relating to California's progress, and a summary of values for the year 1912 is made up of the following principal headings:

Orchard products	\$97,157,090
Vineyard products	26,175,000
Garden products	6,842,950
Dairy and poultry products..	50,380,978
Farm products	139,639,250
Fish industry	10,600,000
Forest products	23,305,000
Petroleum	41,000,000
Other mineral products....	46,425,000
Farm animals and products.	69,294,450
Sundry other products.....	30,700,600
Manufactures	556,249,050

Grand total\$1,097,768,768

The report contains notes on population of the State, counties and cities, facts about financial conditions, and a statement of foreign trade through the port of San Francisco. The bank clearings of San Francisco increased in 1912, 10% and those of Los Angeles 23% over those of the previous year.

The increase of dairy production for the State goes hand in hand with the increased acreage of irrigated farms. During the past five years the production of butter in the irrigated districts has

Bros., now in England, sends back word that he has secured for his firm 20 ewes and 2 rams. The ewes are the pick of

Cavendish's yearlings, and he was able to get the choice, as Cavendish is going out of the business. Mr. Bullard, in

NOTICE

To owners of deep wells and those who purpose putting in deep well pumps, or who may be thinking of changing their present equipment—as well as those who have pump or irrigation problems of any kind.

Come to Headquarters

There is a great deal more to this problem of deep well pumping than simply selling you a pump. Unless it is the **RIGHT** pump for **YOUR** particular requirements, is built right and properly installed, you lose money and time.

The Pomona Valley is the home of deep wells and the center of the largest deep well irrigation district in the world.

We are located in the heart of this district and for many years have specialized on building pumps for lifting water from deep wells. We are the largest builders of deep well pumps in the West. We have specialists in our employ who know every phase of the irrigation question. We have a plant that we are justly proud of and that is able to turn out a uniformly standard and mechanically perfect product.

Therefore—

WE INVITE you to come to Pomona and have your problems solved by men who know; see for yourself what we are doing and what others are doing. It will be time well spent on your part and may be the means of saving you a great deal of money.

IF you can't come to Pomona, then by all means get in touch with us by letter or phone. Tell us your problems and difficulties. Our big 48-page illustrated pump catalog No. 52P will be mailed free if you desire it.

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WANTED—Position as manager or foreman on ranch. An expert at leveling land, raising alfalfa, handling water and gas engines; good milker, thoroughly understands the care of milk and cream; also the care and breeding of dairy cattle. Will give \$100 for any cow that will die under my care from bloat. Will consider nothing less than \$50 per month. Address Box 12, Pacific Rural Press.

FOR ONE HUNDRED DOLLARS per month, advertiser will work as foreman or superintendent; is thorough in general farming, irrigation, vine and deciduous fruit growing; experienced in working all kinds of labor. Address Box 21, Pacific Rural Press.

WANTED

EGGS WANTED—A regular supply of Extras, for which we will pay quotation prices. In writing us, state the quantity you can supply. Address J. S. BLOW, 1420 Magnolia St., Oakland, Cal.

CONSIGNMENTS WANTED—Dried fruits, nuts, honey, beeswax, beans, eggs, butter. Our methods are conservative and returns prompt. J. E. LAWRENCE, 326-328 Clay St., San Francisco.

WANTED—Man to join me in raising alfalfa in Glenn county. I have 160 acres of good land, want man to do work and share in profits. Box 28, Pacific Rural Press.

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155 acres alfalfa land near Colusa and only three miles from steamboat landing on Sacramento river. All deep sediment silt loam, no hardpan or alkali. Perpetual water right goes with each acre. Abundance of water; cost not to exceed \$1 per acre; ½ mile to school and 4 miles from good town where there is a new high school. Land well drained and easily irrigated. Price \$90 per acre; \$4000 cash, balance 10 years; straight loan; interest 6% net. This is a bargain. BROOKE REALTY CO., 807 J St., Sacramento.

114 acres, 2 miles from Suisun, Solano county, 49 miles from San Francisco. Both rail and water transportation. Well improved, beautiful trees. \$15,000, including all cows, horses, hogs, chickens, and hay in barn. 70 acres level bottom land, balance rolling. PAUL GOODLOE, 519 California St., San Francisco.

FOR SALE—20 acres; 10 acres full-bearing fruit trees; 10 grain. Implements, live stock, furnished house, everything goes. Price, \$5,500. For particulars address owner. No agents wanted. W. TIEK, R. 2, Box 15, Vacaville, Cal.

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grown from 17,000,000 to 30,000,000 pounds. The acreage of wheat is decreasing and the area of those crops which require more cultivation, and consequently tend to smaller acreages, is increasing.

New crops which have attained sufficient importance to merit mention are rice, cotton, flax and hemp. The California raisin crop broke its record of former years with the production of 85,000 tons. Thirteen million gallons of wine were exported by sea to 33 different countries out of a total wine and brandy production of 42,000,000 gallons.

Live Stock and Dairy.

From May 10th to June 1st the Tulare County Co-operative Poultrymen's Association handled 10,000 dozen eggs and paid an average price of 20 cents per dozen. This association now has a membership of 80 poultry-raisers.

The creameries of Tulare county about held their own in volume of business for May compared to April. The amount paid out was \$83,289, and the price for butter-fat ranged from 30 to 33 cents per pound.

J. M. Compasso has moved his herd of 60 head of dairy cows from Haywards to his ranch near Sunset, Sutter county, where he is establishing an up-to-date dairy farm.

E. S. Rader, of the Western Pacific railway company, is reported to be working on a plan to get Eastern mutton buyers to come to Oregon by July 1st to buy up the lambs of that section.

Cato Sells, Commissioner of Indian Affairs, Washington, D. C., on June 16th sent out specifications under which he is asking for sealed bids on the following schedule of stock: Six thousand head of two-year-old southern heifers; 1,000 head of one-year-old steers; 1,000 head of two-year-old steers; 250 bulls not under 18 nor over 30 months old. Delivery to be made at Crow Agency, Montana, and at point of shipment. Bids will be received until July 15th.

Ted Bullard, shepherd for Bishop comparing the sheep already on the San Ramon rancho with others that he has seen on his travels, says that theirs still look good to him, and that the lamb crop of last spring could hardly have been better. Bishop Bros. certainly have a fine lot of Shropshires.

Ruby & Bowers report that they have sold this season, from their California headquarters at Davis, 108 head of stallions and mares. Of this number, over 50 head were California bred horses and mares. In discussing breeds and where good stock could be best secured, Mr. Bowers stated that California raised horses were fast coming into their own, and that nowhere could be found better conditions for raising stallions and brood mares, and that it was but a question of time until California horseowners would raise enough to supply the demand. Mr. Bowers will leave for Europe early in July to secure more horses. He will visit France, Belgium, England and Scotland on the trip and will bring back with him many hackneys.

Last week Gage Brothers of Chico sold 350 head of fine beef cattle to Clark Mitchell, who will drive them to Durham. The lot are about the best raised in the Chico district and averaged 1325 pounds per head.

G. O. Hillier of Modesto has associated himself with Rhoades & Rhoades of Los Angeles in an effort to carry out a big consignment sale of live stock at Sacramento at the time of the State Fair. Already a large amount of stock has been secured for the sale, and it is the intention to issue a catalogue of the stock to be offered. Such a move ought to prove successful, and with such energetic fel-

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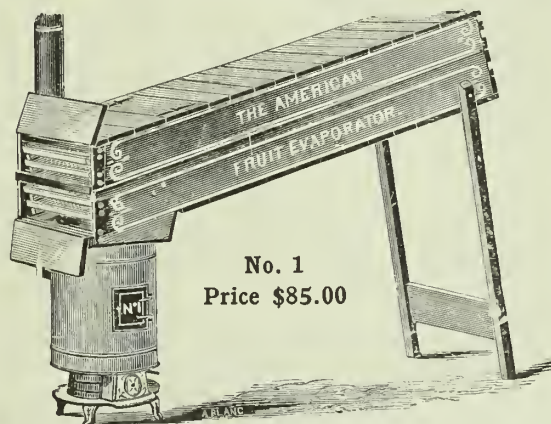
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lows behind it there is little doubt but that it will be.

Land Reclamation.

What is said to be the largest pumping plant for irrigation in the United States is now being put in on the Fair ranch, near Knight's Landing. Five 50-inch centrifugal pumps are being installed.

Many Ohio people are reported to be buying almond lands near Arbuckle.

Last week 200 acres of the Spencer ranch near Tulare was sold to John Wusso of Los Angeles. The new owner is to increase the acreage devoted to alfalfa, for which the land is particularly adapted.

A tract of land comprising 2050 acres, located near Gridley, was sold last week to a corporation which will use the land for rice culture. This piece of land is said to have increased in price during the past year from \$20 to \$60 per acre.

A mortgage for \$6,000,000 was last week placed on 60,000 acres of land owned by the Sutter Basin Company. The money secured is to be used in reclaiming and putting in a drainage system, the work on which has already commenced.

Agricultural Notes.

A communication from Sacramento

states that hereafter California potatoes must be inspected for the insect pest, before they can be shipped into Oregon.

The Sutter Independent says that the barley crop is turning out better than was expected. While the county will not produce a normal crop yet, the average fields are threshing out about eleven sacks per acre.

About six carloads of hay are being shipped daily from Live Oak, Sutter county, to San Francisco. Growers are receiving \$11 to \$13 per ton for baled alfalfa and \$18 for grain hay f.o.b. at Live Oak.

More than twenty-five times the acreage of last year is planted in sugar beets this season near Fallon, Nevada, and the farmers are facing the prospect of one of the best yields in the history of the industry. The only danger now would be a shortage of water, and all indications are that this not to be feared.

According to the Santa Monica Outlook, the lima bean crop will be unusually large this year, being 10% heavier than last. That paper estimates the crop as follows: Ventura county, 880,000 sacks; Santa Barbara, 110,000 sacks; Los Angeles, 90,000 sacks; Orange, 185,000 sacks, and San Diego, 72,000 sacks, making a total of 10,752,000 pounds, or 1,345,000 sacks.

Silos Trouble and Care.

[By Our Associate Editor.]

Silos have proved their value in California and they are going up in large numbers in nearly every dairying district of the State. And yet it goes without saying that there are troubles connected with silos as there are with every good thing.

The troubles that we are to speak of here, the main ones for a person to think of, are due to two different causes, climate, or rather weather conditions, and the silage itself. California silos get it as hard as any place in the country as far as climate, goes, and harder than most, and the silage has as much effect on the silo as anywhere.

Action of Weather.—The main trouble from the weather is the shrinkage that comes in the wood in our dry season. A silo in the first place is little more than a high water tank. The ensilage is like the water in a tank in the pressure it exerts, also in the fact that it is very moist and will keep the container damp, but the tank has an easier time than the silo. The water tank is kept filled all the time and the wood is continually wet and does not have to swell and shrink with the season. The silos in California are usually empty in summer, which is the driest and hottest time of the year and the walls get the fullest force of the season. Even in the humid Eastern States, this is a big trouble to owners of improperly constructed silos and the air in the East contains much more moisture than the air in California, so the silos there do not have the strain upon them from this source that California silos have.

Internal Troubles.—Another source of trouble or strain on the silo is from the ensilage. Silage is fermented material and smells sour, as we know. It not only smells sour, but is sour, and acids always are hard on some kinds of material. Silage is not hard on the wood that silo walls are made of, but is hard on the nails that are used in the silo and eats slightly into cement also.

Advantages in Different Types.—There are about three main types of silos which all have some advantages and disadvantages in withstanding either the climate or the silage juice, or both. These types of silos are the concrete, the resaw and the stave silo.

The concrete silo is the most expensive silo and is considered the most durable. Naturally, it does not swell and contract as the weather is moist or dry. On the other hand if it ever settles so that it cracks it is almost, if not quite, beyond repair. Likewise concrete is more or less porous and if not well looked after, some juice may seep out or air work in to spoil a lot of valuable silage near the walls. Likewise the juice on the inside eats into the concrete more or less. To prevent serious loss from this standpoint the inside walls may be given a good coating of cement, which when smoothed over is more impervious to both air and moisture than rough concrete. In certain respects concrete silos have in California been considered the best to erect when sufficient funds were available, though their expense and the disadvantages referred to are in the way of their popularity and they are yet greatly in the minority.

The concrete block silo is attaining more popularity, perhaps, than the solid concrete structure, having most of its advantages and some others the solid concrete silo does not have. Nothing more than just a rough outline of the pro and con of this or of other kinds of silos can be given here.

The Resaw Silo.—This may possibly not be the best term to use, but it expresses what is meant. This is the silo that is at present best represented in California. Their construction has frequently been described here. For support there are the 2x4's or 2x6's every foot or 18 inches around the outside. On the inside of these is a lining of half-inch lumber, then a layer of building paper, then another layer of resaw. Apparently this kind of structure would be air tight if anything could be, and actually deserves its popularity, though both moisture and ensilage get in some deadly leaks.

As it stands, if well built, the inner layer of resaw overlapping the edges of the outer layer and a good quality of building paper between, to boot, air would have a hard time to get in if it was not for the action of the silage. When the silage is

piled in and perhaps given a good wetting down of course the wood swells. The building paper protects the outer layer of resaw from the moisture and it remains dry for a time, so the inner layer swells greatly and the paper and outer layer remain their original size and something has to give.

Then after the fermentation goes on, the acid gets in its work. The nails are against the ensilage and that, being acid, eats into them more and more every year and they have to give. Thus in practice the resaw silo is not as good as it should be in theory and one need not wonder why it is necessary to be very particular in their construction, nor why they often begin to leak and spoil the ensilage after a couple of years.

Nevertheless, they are lasting enough, when well built, to deserve the credit that is given them, and even when they do leak, a second layer of building paper can be put on and a third layer of resaw which gives a new lease of life. They are more popular here than in the East.

Stave Silos.—The stave silo is the common silo of the East but on account of poor design or poor care has usually proved rather unsatisfactory in California, although in the East they outnumber all other kinds.

When well designed, built and cared for a stave silo should be the nearest perfect of all, but California stave silos have thus far been poorly built and usually not well looked after either. Even when well looked after they have been so poorly designed that they have not given as good satisfaction as other types would give. They have been built on water tank lines and have had to do such radically different work from tanks that trouble has arisen. For while the water in a tank swells the wood to prevent leaks and also prevents the entrance of air, the drying of the wood as soon as the silage is removed and the fact that the silo can be full and yet let air come in, makes a different type of stave from a water tank stave necessary.

Stave Silo Advantages.—The advantages of a silo with the correct kind of staves, and there are such, are several. One thing is that they can be made absolutely air and water tight, which is difficult with either concrete or resaw, which saves enough silage to amount up quite a bit every year. Further, they will have no metal parts exposed to the silage juice and the wood is not injured by it. Likewise if for any reason whatever a stave is put out of commission it can be replaced. Furthermore such a silo can be taken down and rebuilt as good as new if the foundation gives out, or for any other reason. This is a big advantage to the dairyman on leased land. Likewise a tighter and better arranged series of doors can be used than on resaw or concrete, which saves much silage.

The wood swells when the silage is put in and water is absorbed. The hoops should be loosened up a little as the silage settles and the wood swells but not enough to let any air leak in. Again as the silage is removed and the staves shrink, the hoops should be again tightened, thus holding them in place, without undue cracks forming. With good staves, tongue and grooved, well fitted together and designed this will keep a stave silo in good serviceable condition. The stave silo is the only one that can be adjusted in size to swelling and shrinkage, which is a big point in its favor.

A New Type of Stave.—Unfortunately, the old fashioned stave, such as has been the only kind used up to this summer in California would not work well even with this treatment. A better kind of stave has just been introduced in California by the De Laval Dairy Supply Company which with such treatment should give thorough satisfaction. The old stave was simply beveled like the stave of a water tank. Even most of the staves used in the East are still like this, or with small improvements.

This combines a bevel with a tongue and groove, which holds the staves in place and makes it three or four times as tight as a common stave could be under the best of conditions. This stave is practically the same as the Green Mountain stave used in the East, only of redwood or Douglas fir instead of spruce. These staves are of clear tank stock,

with no knots of any size penetrating the wood. Iron plates are used where two staves are spliced and prevent leakage at the ends of the staves as effectually as the tongue and groove prevents leakage around the edges.

There are also patent doors every two feet, which makes it much easier to throw out the silage than where the doors are farther apart. These doors have two beveled and one flat surface to make them fit close and air tight. It is unnecessary to mention some of the other features which are not essential to the type, as the reason for speaking of it is that it is a different kind of stave silo, one which has overcome the difficulties that have developed from the old fashioned stave silo in California.

In such an outline only a brief statement of the reasons for and against each type can be given. From the main points given anyone contemplating the erection of a silo can figure out the details. One thing is clear from experience that the silo is one of the best and most profitable things that has ever come to dairying and everybody who has built a good silo and used it right is enthusiastic over it. You can get silos of concrete, resaw or staves now, but will have to build them right and being built and handled right, they will give good satisfaction. The best thing is to see some of all kinds, if possible, and to write for catalogues of all makes and judge only after careful investigation.

FIRST YEAR'S WORK OF THE TULARE COW TESTING ASSOCIATION.

[By ALEX. ROUSSEAU, Tester.]

The first year's work of the T. C. T. A. was brought to a close on May 23, 1913. There were entered originally 26 herds, totalling 792 cows. Later on, this number fluctuated somewhat as some herds were sold or some new members admitted. The 17 herds which completed the year's work averaged:

No. of herd.	Lbs. milk.	Lbs. fat.	No. of herd.	Lbs. milk.	Lbs. fat.
1	7930	237.79	10	7813	293.99
2	6485	276.49	11	5111	183.50
3	5466	236.00	12	8867	332.35
4	5147	207.75	13	6972	289.90
5	5638	239.30	14	5784	231.00
6	5836	254.30	15	6051	246.50
7	6940	292.90	16	5448	242.09
8	4933	192.80	17	6366	320.09
9	5592	211.20			

Owing to the fact that many cows were in milk when testing began, only those which were milked nine months and over, or an entire lactation period, were considered in the averaging up. The results, however, give a reasonably accurate idea of the standing of the herds.

Number of cows producing a given amount of fat:

Cows.		Cows.	
150 lbs. and under	27	200 to 325	25
150 to 175	30	325 to 350	16
175 to 200	52	350 to 375	5
200 to 225	66	375 to 400	7
225 to 250	69	400 to 425	2
250 to 275	43	425 to 450	1
275 to 300	44		

The heaviest milker proved to be a Holstein cow, 10,974 pounds milk, average test 3.55+%, and producing 390 pounds of fat. The largest butterfat producer, a Jersey-Durham cross, with 450 pounds to her credit, yielded 9840 pounds of milk of an average test of 4.57+%.

Thirty-two cows produced over 325 pounds of fat, and of these 14 are high-grade or pure Holsteins, 3 are Holstein-Jerseys, 4 are pure Jerseys, 7 Jersey-Durhams, 3 Durhams, and 1 Short-horn.

Considering the proportion in which Jerseys and Holsteins are represented, there is little, if any, difference between the two in butterfat production.

It will be noticed that the Jersey-Durham cross has done especially well, seven of them, including the 450-pound cow, easily going over the 325-pound mark, along with six more of various breeding, all in the same herd. This herd, with an average of 292.9 pounds of fat for over 40 cows, is one of the few which had an abundance of feed throughout this year. This is not meant to

belittle in any way the excellent performance of these cows, but to emphasize the fact that plenty of the right kind of feed and good treatment are,

after all, the principal factors in milk production, provided the cows are not of the decided beef type.

Views of a Sheep Grower on Free Wool.

[Written for the PACIFIC RURAL PRESS by
J. C. LOOMIS.]

One hears so many uncomplimentary remarks about the tariff revision, as to its effect upon the sheep industry of California that a great many are in doubt as to the future of the business.

Although almost a unanimous opinion prevails among our larger breeders and growers that with free wool the majority of our producers will have to go into other lines or else specialize on mutton sheep there is one breeder at least who looks at the proposition in a more optimistic manner.

This is J. M. Howell of Red Bluff, who has been producing and selling wool in this State continuously since 1862, and while being a large producer, has also specialized on high bred Merinos and naturally has always produced a superior quality of wool.

While conversing with Mr. Howell we learned his views, which are substantially as follows:

"In order to understand the tariff revision as to its effect upon the sheep men one has to be familiar with conditions from a producer's standpoint and in my 51 years of producing in this State I believe I thoroughly understand it.

"As far as the tariff putting the sheep industry off the map, I don't believe it at all for the simple reason that it has not strengthened our prices a particle since the buying power has been monopolized by the so-called Woolen Trust. To illustrate, years ago, before any tariff existed, we used to have a number of buyers here shortly after the clip who not being organized would pay us what the wool was worth to them, that is, we had competitive bidding for our product. Some time after the tariff was added a good many years ago now, we growers faced a different system of buying and selling which has continued until the present day. This was caused through the different firms combining to force us to sell and was done about like this:

"Six or seven buyers are in town and I go down to sell my wool. Before this, however, they all have samples of my clip. I go to buyer No. 1 and say, 'well, what will you give me for my wool?' and likely he'll say, 'Well, Howell, you've got good wool but I'm not wanting just that quality so don't believe we can do business this year.'

"Then I go on to the next fellow and so on until I do find one who will say, 'Yes, I'd like to have your wool. What's it worth?'

"I set my price, say, 17 cents, and he says, 'Well, I can't handle it then, it's too high.'

"To make the story short he finally offers me what he wants to and that's all I can get, as none of the others will bid against him and no matter where I look for a market it's the same story.

"What's the reason? Simply this: Before I see them they have set a price among themselves for my wool and also selected the one to do the buying and I am entirely at their mercy.

"This practice would never have been used if it wasn't for the tariff, as it has permitted the manufacturer to control not only the price of the raw material but also the finished product and he in the meantime has hoodwinked the sheep men into the belief that they are being protected, whereas he has kept the price of wool just high enough to keep the supply equivalent to the demand and that too, at low prices. For instance, about the time growers become dissatisfied and start to go out of the business the market is raised to a paying level.

"This bait is continued until the ranches are pretty well re-stocked and every one feels he is about to make some money, when down goes the prices and we growers run at a loss again until they deem it advisable to give us more bait.

"Every one familiar with the industry knows that the producers of wool do not receive any more money for the wool in a suit of clothes today than we did many years ago and although the very latest improved machinery is used for making the

cloth and garments, the consumer pays more now than ever before, simply because the manufacture has been protected, but neither the grower of wool nor the factory laborers have been benefited a bit.

"As to what effect foreign countries will have on our market with no tariff, it is conceded that Australia is away short in sheep and no doubt will never produce enough to supply Great Britain's demand, as their ranges are being cut up the same as ours and sheep men will be driven out of the business through high land values just as we are at present in this State.

"The only open country left that I can see which might effect this country's market is Mexico, but this seems to be in the dim future to me, as nobody will embark into the industry in that country while the political conditions prevail there which have always in the past prevented American capital from investing.

"Until those conditions are changed we need fear no trouble from that source, as the present day wool from that country is of very poor quality due to the scrub stock kept and will never be able to compete with the quality of wool produced here, tariff or no tariff.

"You may say for me that the sooner this so-called protection is removed the better it will be for the country, but by all means remove it from woolen goods as well and let the manufacturer compete with others for a while."

In summing up Mr. Howell's views then one is led to the belief that the manufacturer has used the tariff to greatly increase his earning while the grower has only been allowed a living price, or in other words, the producer has simply been allowed a big enough price to urge him on to stay with the business in the belief that if he didn't have the protection his business would go to smash, whereas just the contrary is true.

THE DEMAND AND SUPPLY OF BETTER PORK.

[Written for the PACIFIC RURAL PRESS by
J. C. LOOMIS.]

Ask most any farmer in the State if he raises any hogs, and he will tell you that he does.

Then try to find out whether he gives much attention to their feed, care, and so on, and a great many will confess that the hogs mostly take care of themselves, except to be watered and turned into a pasture to rustle.

To one looking into the matter, it seems a strange condition that farmers who study soils, fruit pests, dairy feeding, and so on, should pay so little attention to such a profitable by-product as hogs, which we are told total a ten million dollar consumption in California every year, 66% of which now has to be shipped in from the East.

With as much good alfalfa and skim-milk as we have, and grain at its present price, this condition should not prevail, if the results obtained by many practical farmers are of any value. The first trouble seems to be that enough good hogs are not raised. By this is meant better bred animals, for it is an acknowledged fact, by most farmers, that a well-bred hog will add meat much faster than a scrub.

The next trouble is that not enough attention is given to studying the market from a butcher's standpoint, for he is the one to say what the price will be.

One man who has been both a butcher and a hog raiser, gave us his experience along this line, which was very similar to some formerly given in the Press, and is as follows:

The butcher wants a hog which will dress away the smallest possible amount, because the less waste the more pork. For this reason he is always looking for grain-fed hogs, and by this he does not mean hogs which have only been finished

on grain for two or three weeks prior to buying them, but rather hogs which have been fed some grain from the time they are weaned.

Hogs of the former kind dress from 70 to 75%, while hogs of the latter kind dress from 80 to 85%. This, then, gives the butcher 10 pounds of pork to the hundred, or for an average hog of, say, 200 pounds, 20 pounds more marketable meat. In addition to this, however, is the better flavored and higher grade of pork which he handles and for which he is able to receive a better price, especially in city markets where a high-class trade is catered to.

Still another favorable feature for the packing-house buyer is that good grain-fed hogs make better cured meats as ham and bacon, and for this reason, if for no other, he prefers the grain hog, as our Western packers want to overcome the importation of cured meats in order to realize the profits which now go into the pockets of Eastern packers and the railroads.

With all of these conditions, then, the buyer who pays one cent premium for grain-fed stuff can make more money than if he paid less for common stock.

From a feeder's standpoint, this rancher figures that he can produce a fairly well-bred hog cheaper and quicker on skim-milk and ground barley with alfalfa pasture than any other way. In fact, he has tried it both ways, and finds the addition of grain from the first the most economical.

For several years he fattened feeders in connection with his dairy, and after feeding the grain ration was able to realize a cent a pound premium over the market.

In this manner he could turn off a hog from 150 to 200 pounds when they were five to six months old, and the extra cent a pound more than paid him for his extra feeding, as it was only necessary to feed a small amount of barley with the skim-milk for three to four months after weaning. Another thing he discovered was that the practice of feeding grain for the last two or three weeks was only a waste, as it did not make a better quality, and the extra gain, if any, was small.

That he is one farmer who is convinced that better feeding pays, goes without saying, as one buyer who paid him 9 cents when the market was 8 cents, wanted him to sign a contract for his entire output.

It should be said, however, that the country butcher is not apt to pay any bonus for this kind of stock, and he is the man who buys the output of a good many of the small ranches. To the man selling less than carload lots, then, some other scheme has to be worked out, and in order to do this some co-operative method could be used, such as community breeding. With three or four small hog producers all feeding along the same line, and by purchasing one well-bred boar and by breeding nearly at the same time they could, by separate weighing, turn off a carload at a time, and in this way realize the higher price.

When you speak of grain for hog feed, many say it is not practical to pay the high price for that kind of feed, but as the above rancher remarked: "When grain was 75 to 80 cents a hundred, people fed it for three and four cent pork and made money. Now pork gets as high as 8 cents, or about double in price, and grain has less than doubled, so if there was money in it before, why not now?"

INDICATION OF HEAVES.

To the Editor: We have a mare seven years old that is troubled with a chronic cough, and at times shows symptoms of heaves, and also has occasionally a white foamy discharge from the nostrils. She is a greedy eater and drinker and her excreta is often very offensive. Is her glut-tony a cause or an effect of her trouble? What can we do to relieve her?—T. R., Sebastopol.

ANSWER BY DR. E. J. CREELY.

If she expels flatus when she coughs, this would indicate a predisposition to heaves. Wet all food, as dry or dusty food aggravates the cough. Give the following: Spirits camphor, 4 ounces; Fl. Ext. belladonna, 2 ounces; neutral oil, 8 ounces; oil eucalyptus, 2 ounces. Mix and give tablespoonful 3 times daily.

San Francisco Veterinary College.

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REGISTERED DUROC JERSEY SWINE—Some extra good young boars for sale, ready for service. Best Eastern strains. Ed. E. Johnson, Turlock, Cal.

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REGISTERED POLAND-CHINA SWINE—Prize winners, finest stock in State. \$30 up. M. Bassett, Hanford.

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BRAE BROOK COLLIE KENNELS—Line bred tri-colors. Working and prize stock. R. F. D. 69, Santa Rosa, Cal.

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ANOTHER PROMISING HOLSTEIN.

The accompanying illustration shows a young cow of A. W. Morris & Sons, Woodland, which has made a great record already and promises still more wonderful things later on. As can be seen, she is an excellent show ring animal as well as being a great producer.

This cow, Molly, Duchess Daughter, re-



cently completed the excellent seven day official record of 23.54 pounds of butterfat as a four year old. In 337 days lactation period she produced 548.15 pounds of butterfat, which would make 645.20 pounds of 80 per cent butter. From this it can easily be seen that great yearly records can well be expected when she is several years old and given a 365 day test at full capacity.

ALFALFA OR TEA.

The successful farmer of today is a highly educated man, who is always on the lookout for new machinery or methods to handle his crops. He does not get time to take much interest in the source of supply of his usual beverage "Tea", and unfortunately does not get it as good as he is entitled to. The reason for this is that a lot of cheap teas are packed in cardboard packets for large profits and is so stale by the time he gets it that it is little better than chopped alfalfa.

The farmer should only drink the best tea, he will find it delicious, refreshing and bracing, after his day of toil, and it is not like coffee, that will rack the nerves, ruin his stomach and make him depressed, but soothing and quieting, and will help to lift the burden off his shoulders, and the cares and worries from his mind.

Good tea, packed in absolutely airtight tins, can now be easily obtained by parcels post, under almost United States government supervision. Such teas are not cheap intrinsically; but to the economical housewife they are the cheapest, for one pound of good, fresh tea will make over 300 cups of delicious tea, for it always keeps fresh, and if the housewife always carefully closes the lid tightly, the last cup made will be as delicious as the first cup.

Drink good, fresh teas and live to a ripe old age.

BEEKEEPERS TO ENTERTAIN.

To the Editor: The Stanislaus County Beekeepers Club invites California to come to Ceres on Tuesday, July 1, 1913, and help us enjoy the day in beautiful Riverside Park, in a natural shady grove on which several thousand dollars have been expended to make it one of the most charming places in California. It must be seen to be appreciated.

A good program has been arranged which only partly conveys an idea of what will be carried out. The novice in agriculture cannot well afford to miss the demonstration lesson in Queen rearing to be given by W. A. H. Gilstrap. Prof. Lynch is a host. His lecture on beekeeping and cock fighting in foreign lands is rich. Everybody knows that Dr. A. J. Cook is one of the most entertaining and instructive teachers in the State. Prof. C. W. Woodworth, of the State University, needs no words of introduction from us. He will sure be interesting. We ask that all visitors from a distance notify the

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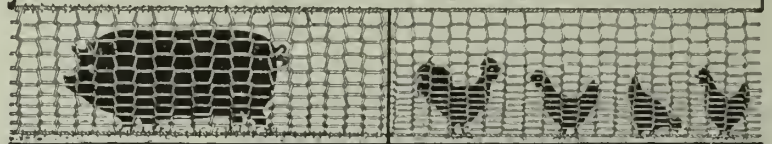
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committee if possible of their intentions of coming that every possible arrangement may be made for them.—J. G. Gilstrap, Ceres.

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The Beginner at the State Fair.

[Written for the PACIFIC RURAL PRESS by
J. C. LOOMIS.]

Although the State Fair is two months off it is now about time for those intending to show to begin fitting their stock.

In the past there has been a feeling among stockmen that exhibitors at these fairs were compelled to spend large sums of money both while exhibiting and when at home and that the only benefits to be derived from such expenditures were the cash prizes and ribbons won.

That these fairs are beneficial to one in more than the prizes obtained is vouched for by T. J. Gilkerson of Stratford, Kings County, whose experience may be beneficial to anyone who has hesitated to take his stock to shows, fearing, to use a slang expression, that he wouldn't have a look-in. Seven years ago Mr. Gilkerson purchased 160 acres of land eight miles below Lemoore and went to dairying, he having formerly taken a

course in animal husbandry in an eastern college.

For some time only grade cows were milked, but it was decided that with better stock and only 80 acres better results could be obtained, so two registered Holstein heifers and a young bull were brought out from the East and ten head of registered heifers were purchased from Charles Welch, of Los Banos.

About this time eighty acres of the ranch was rented out, the 160 acres being too much care along with the dairy work. As soon as this young stock was in good shape it was decided to take them to the State Fair, and while neighbors laughed at the idea of just everyday heifers and bull standing any chance at such a place, the owner went and when he came back had a good many ribbons and what he considered more profitable, had learned from the judges where the defects in his stock were.

This first attempt spurred him on and last year he was able to take third prize with his bull Sir Segis Hengerveld De Koe, who was showing against some of the hardest competition in the West.

It should be said also that while he received a great deal of knowledge he also was able to dispose of his young bull calves at good prices.

That the showing he has made is within the range of anyone can be seen from Mr. Gilkerson's experience. Very little capital was put into the business at first and since that time the stock has had to pay not only for theirs and the owner's maintenance, but for the other improvements on the ranch.

These consist of a modern residence, a horse barn, milking barn and separator house, besides fences and other needed improvements.

About twenty-five head of cows are usually milked, a good many of these being grades, but as fast as the registered stock comes fresh these are sold.

Last year a new separator house was built and sweet cream sold and to show that the better stock and methods pay, the cream checks from the twenty-five head milk about the same as that of other dairies nearby who milk from 45 to 50 scrub cows, where no culling is done. The owner is a firm believer in good feeding, the dry stock being given as good feed as the fresh ones, alfalfa being the chief feed used.

This was some Kaffir corn which had been frosted, there being forty acres of it that a neighbor sold for \$200. It was run through an ensilage cutter and fed with alfalfa and not only increased the supply of milk but materially reduced the amount of alfalfa fed, thereby lowering the cost of hay fed to a very great extent. The skim milk is fed to hogs in connection with ground corn and barley.

One practice of this breeder is to weigh each calf's milk, as it is considered very necessary to have each calf get its proper allowance, which varies according to the age of a calf from six pounds upwards. Judging by the thrifty appearance of those calves on the ranch at the time of our visit, this is something all dairymen should give more attention to.

Now that the purebreds have increased in number, more of a selection is made possible and in the future when fair time comes around a finer showing of animals than ever can be made.

As before stated, it would seem that anyone having well bred stock can be benefited by showing at the fairs providing he goes there with the object of learning rather than of simply beating the other fellow and men who start at the fairs this year will benefit greatly by it in the future.

At the Portland Union Stock Yards last week the market was steady and stronger than the previous week. Good steers brought as high as \$8.50, while the aver-

age was around \$8; heifers and cows sold for \$6.75 up to \$7.50; calves, \$9; bulls, \$6 and \$6.25; hogs, \$8.25 up to \$8.40; lambs, \$6.75, and ewes, \$4.

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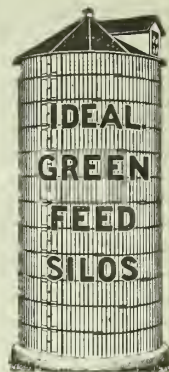
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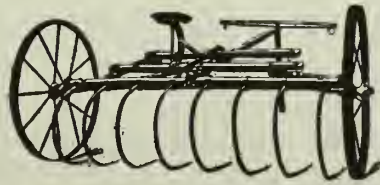
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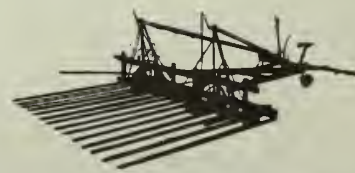
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STOCKTON, CAL.

Live Stock Notes.

[Written for the PACIFIC RURAL PRESS by
J. C. LOOMIS.]

Among those who expect to go into registered Holsteins on a large scale are Peterson and Slausen, of Blocks, Yolo county.

This ranch has been run as a large grain ranch for a good many years but by the use of pumping plants alfalfa proved so profitable that it was decided to go into the dairy business.

There are at present 160 acres into alfalfa, but this will be added to as water is developed.

As the ranch lays close to the Sacramento river, there is considerable low land pasture which makes it ideal for a dairy ranch.

Last year a car of registered stock was brought out from the East, ten head of which were bred heifers from the well known Stevens herd.

These heifers were bred to such bulls as King of the Pontiacs, Pontiac Artist

and Albina Butterboy, so that some fine offspring are expected.

The bull Maple Crest Korndyke Pontiac was brought out at the same time, being purchased from Dimmick and Bro., of Geneva, Ohio.

It is said that this was a fine individual with good records back of him, but while in pasture during May he was killed by a supposedly stray bullet, so at present a bull from A. W. Morris & Son's of Woodland, is being used.

Mr. Peterson, who is manager of the herd, states that this fall a new barn of large capacity will be built, also a silo will be erected.

Although Los Molinos is comparatively a new district for alfalfa growers one finds a great deal of interest being taken in purebred stock.

Only having been settled for two years, no large herds are as yet to be found but several are laying foundations for future registered herds.

Among those going into this line is Charles Promme. On this ranch Poland China hogs and Holstein cattle were selected, there being nine brood sows at present.

The foundation for this herd was purchased from the Williams ranch at Chico and a boar sired by Royal Sovereign from George A. Smith of Corcoran, Kings County.

Mr. Promme was fortunate in securing a ranch which has a large number of fine oaks scattered through the alfalfa fields and also has about two acres of densely wooded land along a small creek, which gives a lot of valuable shade in the summer and affords good shelter in the winter time.

Although starting with purebred Holsteins the intention is to keep only such stock in the future, and being located in such a good dairy country, Mr. Promme should be able to find a ready market for all of his offspring.

The Gooch lands near Red Bluff were recently sold to Los Angeles capitalists. There are 3,000 acres in this ranch which was formerly run to sheep. It is reported that this as well as several other large sheep ranches sold during the past few months will be subdivided and sold to smaller farmers.

More registered cows will be purchased as fast as possible with the intention of running a large herd of purebreds in the future.

That California is being recognized as a coming center for purebred stock is evidenced by the number of eastern breeders who are moving their herds to this State.

Among those who have brought good hogs with them during the past year are Slocum & Son, who are located near Willows, Glenn county.

The Slocums bred Duroc Jerseys in the East for a great many years and had a reputation in Nebraska as being among the best breeders of that State.

That they will become prominent as breeders of Durocs in this State was shown at last year's State Fair, where their boar, Foxey Model won first and Grand Champion awards.

Since then the boar Samuel's Chief has been brought from the Sam Stewart's herd of Nebraska, and is a likely looking individual.

Mr. Slocum states that they are so busy developing their new ranch of 160 acres that they will be unable to exhibit at the fair this year.

A nice lot of purebred Holsteins were purchased soon after arriving from N. E. Mullick of Willows, the intention being



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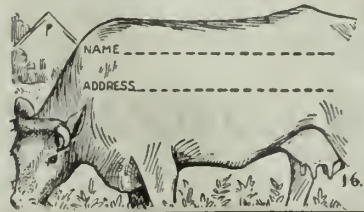
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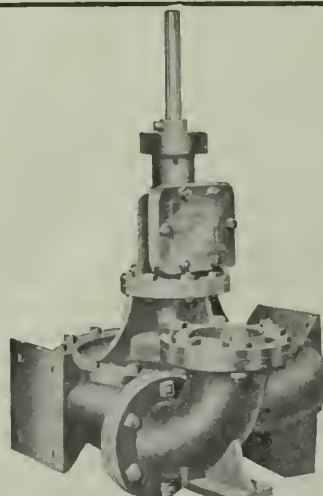
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3 past Yearlings from Tested Dams

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to run a purebred hog and cattle ranch in the future.

This breeder stated that while good stock seemed to be harder to introduce here than in the East, he considered that in the future people will learn as they have in the East that money spent for better stock is well invested.

The increase in the dairy industry around Orland, Glenn county, is the cause for the building of a new creamery at that place. E. F. Hale, owner and manager for the Orland creamery, has been elected manager for the new company, which will be known as the Orland Creamery Co. The old plant will be shut down as soon as the new one is erected, which will have a capacity of a ton of butter a day and three tons of ice. The plans are in the builder's hands now, and building will be started at once.

Something new for this State in the way of a breeding farm is seen on the Clark Acres, located near Willows, for besides registered Berkshires, pure-bred Welch ponies are also being raised. This stock was brought from Illinois a year ago, one of the stallions being grand champion in his breed at the Illinois State Fair in 1912.

Twelve Berkshire brood sows were also brought out from Illinois at the same time, having been purchased from the Brookline Stock Farm Co., of Springfield, Illinois. The herd boar is Lee 3rd, 161646. Several fine sows are kept, one being Brookline Premier Lustre 161643, sired by School Master 2nd, 117800.

Mr. Clark states that since arriving a year ago he has been so busy preparing his land that he hasn't done much with the hogs, but expects in the future to get into the business right.

GIBSON'S HOLSTEINS.

While one finds a great deal of land formerly farmed to grain being subdivided and sold to smaller holders who after planting to alfalfa start into the pure-bred breeding business, it is seldom that a large grain ranch is changed to a breeding establishment by the former owner. In this respect, a visit to the J. S. Gibson company's ranch near Williams, Colusa county, is interesting, as an endeavor is being made to turn an 1800-acre ranch into such an enterprise. Holstein cattle and Berkshire hogs were selected for breeding purposes, the foundation of the cattle being the last heifer calves bred on the well known Pierce ranch on Pough and Ready island near Stockton. Ten of these heifers were out of imported dams which were fine individuals. At the time of our visit, there were 20 head of mature stock, all of which are good producers.

The herd is headed by Prince Alcartra Korndyke. This bull was purchased from A. W. Morris & Sons, of Woodland, and is out of their cow, Tilly Arcatra, which has just broken the world's record as a junior three-year-old with 692.98 lbs. of fat. The sire of this bull is Korndyke Queen De Kol's Prince, No. 26025.

No official testing has ever been done on the herd, but the owners keep close watch of the milk and butter-fat production of every cow. The foundation for the Berkshires was purchased from Charles Goodman, of Williams, and it is the intention to run about 50 brood sows next year.

There are about 250 acres seeded to alfalfa, which is fed chopped, and wells are being developed for irrigation.

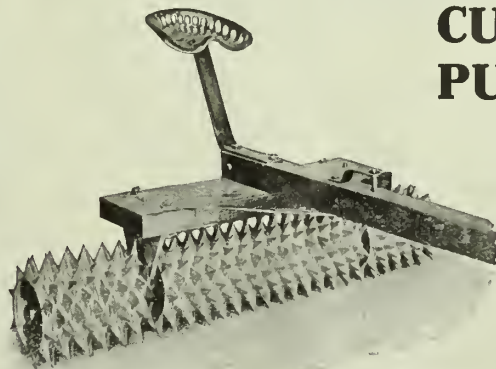
The output of cream by the Kings county dairies was larger for May than for April. About \$150,000 was paid for butter-fat in that section last month.

\$2000 Reward

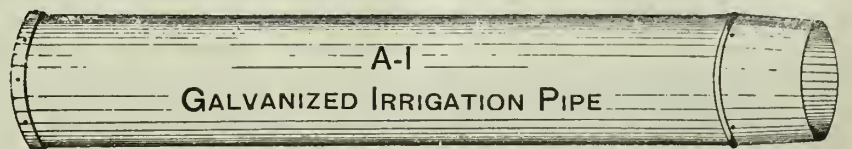
Serious interference with and destruction of its electrical transmission lines having occurred at various places in the past ten days, the sum of TWO THOUSAND DOLLARS (\$2000) REWARD will be paid by the Pacific Gas and Electric Company for information resulting in the arrest and conviction, under Penal Code 593, 594, 607, or 624, of any person who has unlawfully interfered with or destroyed, or who shall hereafter unlawfully interfere with or destroy, its electrical transmission or distribution lines, gas mains, or other property used by it in furnishing light, heat, power, water, or steam to the public.

(Signed) JOHN A. BRITTON,
Vice President and General Manager.**Pacific Gas and Electric Company**

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Some Poultry Experiences.

[Written for the PACIFIC RURAL PRESS by
SUSAN SWAYSGOOD.]

About a week ago I received a letter from a customer, who after telling me his troubles said: "I would not bother you with this but that it may be a lesson to some other poor fellow who through economy may do the same thing."

Of course I am not going to mention names as that is not at all necessary, not that he would care, but the lesson can be heeded without it. He is a comparatively poor man with a love for good stock and although working for wages on a ranch he keeps a few chickens for himself. Well, about one month ago I sold him a very fine pen of White Orpington fowls, and after ordering he built a house and prepared for them, and he says "he was as proud of them as a boy with his first knife." Then all at once he noticed one hen droopy, and he put her by herself in the morning on a nice green lawn.

At noon he found her dead and on examination he found that there were thousands of tick nits laid all over her body. At night he examined the rest and found them in the same condition so he pried off a big board he had taken from an old blacksmith shop, and, sure enough there were the ticks. He found another place for his stock to roost that night, but next morning the cock was dead and on opening him he said "he could not find a spoonful of blood in his body," the ticks had drained him dry. The three hens that were left he gave green coffee berries to, which livened up

at once, then he gave them strong feed for a few days and now he tells me they are singing again, and one laid an egg the morning he wrote me.

Now he put all new lumber in his little house but that one board, and through trying to save a few pennies in lumber he lost \$15 in chickens, besides the loss of eggs just when he wanted to hatch. And if he had not been a sensible and examined the birds when they arrived he would undoubtedly have blamed me, in which case he would have missed finding the source of the trouble in time and have lost every one.

But he said, "Knowing the fowls were clean when they came and that all the lumber was new but that one board, I was able to locate the source of trouble in a minute."

Now I sent him some 1 grain quinine pills to help brace the hens up and told him to dip the hens right away but in the meantime he had used buhach powder and it did the work. I was somewhat afraid that a powder would not kill nits but he says it did and he tried it on some Capons he had that had ticks, and in every case the buhach was a success.

Now this is good to know, and if kept in memory, or what is better, the Press is kept and a notation made on the margin you will not have to depend on your memory if ticks get among your flock. Of course dipping in tobacco water or any of the commercial dips on the market would kill both ticks and nits, but in the exhausted condition of the fowls the buhach is so much easier on them.

The next experience is from a subscriber who is in need of information. As the communication is too lengthy for our columns I shall have to quote the real facts and let the rest go.

LIVER DISEASE IN PEA FOWLS.—"The issue of your paper of May 31 has a very interesting article on the diseases of the egg organs. In this connection I should like to obtain some information concerning the death of a pea hen."

"I have in a runaway six, three male and three female pea fowl, run is 12x50 feet. Green feed was not obtainable part of the time, and they were forced to eat corn and other grains. As the laying season approached, the hens began to act dumpy and the males so pugnacious that we had to provide separate pens for them. The hens have laid fairly well except that one got more and more droopy, spending a great part of the time on the nest. One morning she was found dead on the nest. Examination proved that the intestines had quite a little fat on them, part of which looked soft and unhealthy, the other broken and crumbly. It was light yellow in color and crumbled under the touch.

There was an offensive odor, and one lobe of the liver was yellowish green with salmon colored spots. The other lobe was affected, but had some healthy spots in it. The egg organs were not dissected owing to the bad odor of the whole bird. The two remaining hens have developed the same symptoms. Have discontinued the grain feed and am trying to tempt them with all kinds of green feed, grit, shell, charcoal, etc. What can I do to save them?"—G. B. M. L., Los Angeles.

ANSWER.—If there had been any hopes of saving the flock I would have written a personal letter, but in my opinion they were too far gone. Anyway, the owner was on the right track, water cress and mustard greens were the things that would do it if anything would. I consider these pea fowls had developed a bad case of liver disease through im-

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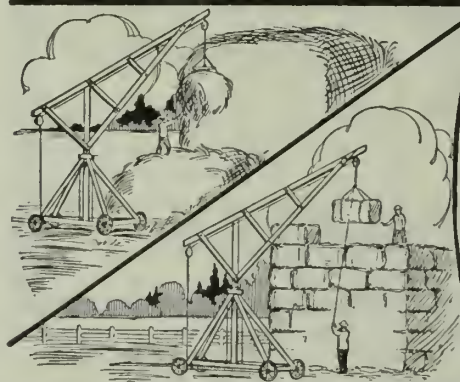
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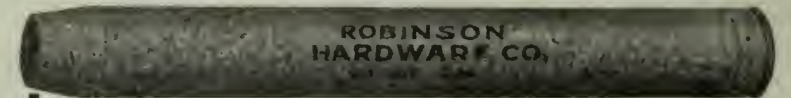
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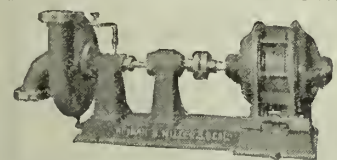
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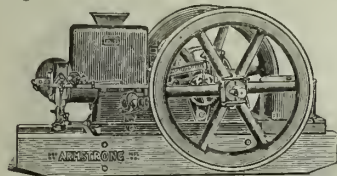
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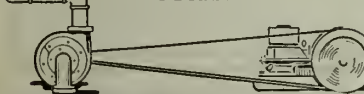
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BARRED and BUFF PLYMOUTH ROCKS.

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JAS. M. MONTGOMERY,
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proper feed. Pea fowls are children of nature and like to roam about and pick their living.

In a very old English poultry book I find the following:

"The education of peacocks requires rather the care of a gentle householder who dwells in a city, than a crabbed, surly rustic."

He goes on to say, "Because there is no fear of thieves, it wanders up and down safely without a keeper, and acquires for itself the greater part of its living. The females bring up their own young ones with great care. Nor ought he who has the care of them to do any other thing but give a signal by clapping his hands, and then throw out a handful of barley. And this is more that the owner may count them, than as a matter of feed."

Columella says, "When the males get pugnacious they should be separated and only one male allowed to five pea hens."

Now if our correspondent was trying to breed from a yard containing as many males as females it was wrong according to this authority.

PROPER FEEDING.—In a modern, up-to-date poultry publication I find: "If pea fowls are confined in runs, they require green feed daily, such as cabbage, lettuce, sprouted oats and a little corn or barley."

Now anyone can have sprouted oats, and it is the king of green feeds in cases where there is not abundance. The first thing to do in all cases of liver trouble is to give a laxative, it does not much matter what it is so that it does the work, then let them have green feed and a little whole grain, but let them work to get it.

We have another inquiry from a subscriber that will perhaps help in the experience school.

CAPONIZING.—Can three to four month old cockerels be caponized successfully in summer, and if so, what care, feed, etc., do they require afterwards?—Mrs. A. L. J., Gridley.

ANSWER.—The birds should be between two to three months, not over four, unless some very large variety that matures slowly. Size is equally as important as age, and a bird to be caponized should not weigh more than one and a half pounds.

The work can be successfully done in the summer season, but must be kept without food or drink for at least 24 hours, longer is better and keep in shady place.

FEEDING.—After caponizing, feed the bird what soft feed he will eat up and let him have plenty of water. Than leave him to himself as he will be his own doctor. In two or three days look them over and if there are any wind-balls, simply prick with a needle to let the air out; this may have to be done two or three times before the wound heals up, but after it has healed, treat just as you would other chickens and feed them about twice a day. There is nothing made by trying to rush nature, it takes 15 months to grow a good Capon of the large breeds.

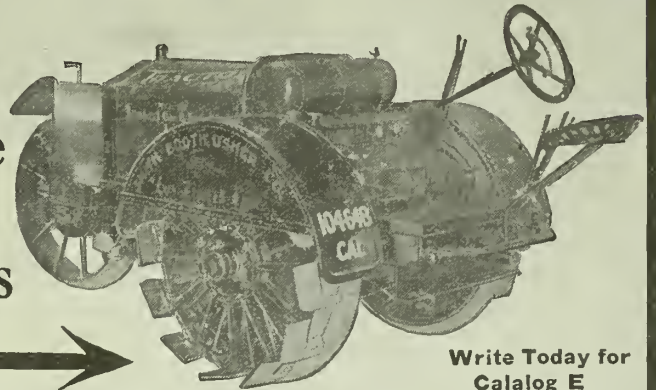
As the fight has been taken out of them, it is only right that they be kept in separate yards, otherwise the hens will peck them, I wonder if we did not get the word "hen pecked" from this source?

The males will also bully them and domineer over them, and growth will be slow. So in charity to the birds and profit to ourselves we should let them have a run to themselves.

I had a neighbor that kept 17 Capons in one stall of a stable from April until November and never once let them out. I call that cruel, but they appeared to be happy and healthy, and as that is the main thing, what is the difference? Now I hope this experience meeting will help ever so many in various ways for none of us can know too much.

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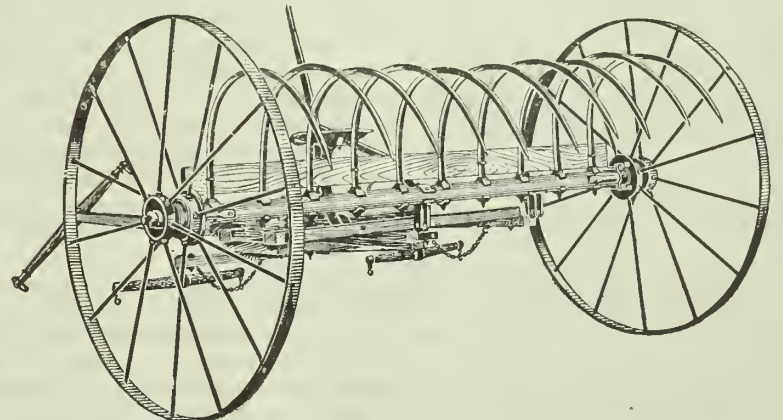
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The Home Circle.

The Story of the Day.

She looked through the mist from the kettle at the face opposite her—her own reflection in the glass—a small, pale face, dark brows, hair shot with silver, and soft light eyes, tender, appealing, dark-circled; the face had had its charm once—she thought of it as of someone else—but now at fifty years—today was her birthday—the glory had departed from Israel! She was alone—there were those who remembered, but they were in the Unseen—she could not feel their touch or hear their voices—how the past unrolled itself, and the birthdays, like jewels, shown brighter for their dark setting: the gladness of the child days when merry voices and happy plans filled every moment; then the changes, the deaths, the rounding of her young womanhood in the perfect comradeship of a harmonious marriage lasting until his death. "He never forgot," she thought; "my birthdays were a joy for him to look forward to." "Oh, Ned, where are you today?" Not always was there a splendid gift—some of the years had been hard poverty—but never once had the day come without his remembrance. Once it had been a great Crecopia moth clinging to a shining branch of green gooseberries. "See what Nature has sent us for your anniversary, Love," he whispered, bending to kiss her as he laid it in her lap. Another time—that was almost the most tender of all—he had said: "Dear, I have no gift for you at all today, only an extra kiss."

That had made the richness of life, not the gifts, but the dear love that never forgot. How had she lived to let it go out of her life—she marveled at it day by day—but she had tried not to be a coward, and few knew. She talked to her neighbors of their children's pains, and pinafores, as she had been used to do; she went to church, to the Guild, to her woman's clubs, she even took interest in the suffrage movement as affecting the civic problems of her native city, and in child labor laws; outwardly, except for her lessened income, her life was much the same. She alone knew that there was something dead in her—something dead that she must carry to her tomb—and this lessened her speed and had drawn the fine lines about her eyes and brow. Once she had tried to tell her minister, but he did not understand—her beginning had been unfortunate—and he rebuked her sternly for her want of faith in God. Since that time she had come to know how absolutely one must stand alone with God.

In the byways of life souls meet, but in the testing places they stand alone.

"I see why it is," she reflected; "God is a jealous God, and will be inquired of."

It was a perfect day, the glad May sunshine leaped in as she opened the blinds, and touched to a richer tint some pansies in a glass upon her table. She tried to eat, but the food had no taste and she set it aside.

She remembered this was the day of the annual church picnic; should she go? Since Ned left her she had gone to no festivity, the very thought was painful, but today something seemed to whisper, "He wants you to be happy." Yes, she would make the effort, so hastily a few dainties were placed in her small basket—she remembered the chat about what was best to take upon similar occasions with keen pain—there was no one to consider now.

"Oh, Memory be still!" she moaned as she made her way—a slender woman with a still youthful step—to the cars which were already crowded with happy family groups; she nodded to one and another,

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but how different it all seemed. Ned was ill so long, while her life was changing, the young folks had grown and married, some had died, some had gone away, others had taken their places—she felt like a stranger who had imposed her presence upon the intimacy of a household, as she watched the gay groups gather upon the grounds—everyone was with someone, except herself.

Presently a tiny figure, clad in a short, brown stuff dress, patched, plain, stout shoes, her gray hair drawn into a small knot at the back, stood before her.

"I am Fraulein Baumgarten, are you alone? Yes? Well, let us eat and after that we can bring coffee to the others. I cannot wait, I am starved!" and the foreign inflection of the voice took on a merry note.

Mrs. Ware acquiesced, wondering whom her new friend might be. As she studied her countenance, she noted the small face, large head, brown, near sighted eyes peering through old fashioned spectacles.

Mrs. Ware was attracted by the very homeliness of her neighbor; the voice was musical, the whole expression extreme kindness, even to gaiety.

"Look at that dog!" she cried. "Up, Rover, up! He will get it; see him climb the ladder for his meat! Well done, old fellow! One must climb for food."

"I know about you, Mrs. Ware," she said, "though you do not know me. I teach the girls in the seminary German, and I go to all the fun—fun is good for us; I have no time for pain."

"Then you have not known sorrow, death, disease, poverty," said Mrs. Ware.

"All of it, I think, but God—He is good to us. My mother, she could not have worked as I have—she died. My brother, he was ready to preach, it was good to be ready, though he died before his chance. I am what you would call alone, but that it not possible in a world like this. Someone always needs us, and a tree, a grass blade, a cloud will comfort. He speaks in all—life must be fed, yet, but it is not in clear water—you know the crab; if it has not mud for its eggs it will not drop them, they will die within it! Wise crab! it knows the food laws."

"But I have tried," cried Mrs. Ware, half inaudibly.

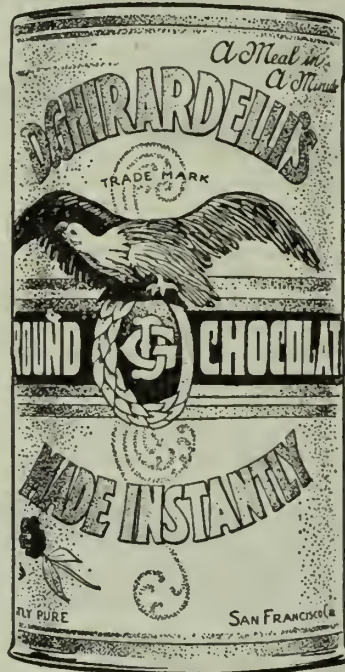
"I know, I know," replied her friend, "and 'twas well done, too, but now leave the pain, laugh with the children—see that class there—they are from the Settlement, and every one paid for his ticket—earned it himself, so they bought the day at a fair price."

Come, let us go to the woods—they need us to talk to. Oh, the gift of the very air of a day like this!"

As they passed a tall, fair woman, overdressed, pouring coffee for one of the groups, laughed merrily at some jest, and when they were at a little distance, the Fraulein asked:

"Do you know her who laughed? No? Well, she gives the grounds—her home, for the day to us—and her son is a cripple, and her husband, he is ill, will be insane, maybe; they will go abroad and she will laugh all the time, always laugh to

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You'll never tire of Ghirardelli's Ground Chocolate no matter how often you serve it. Always the same, year in and year out, it is the one beverage that pleases the entire family. And it is

Very Healthful

being highly nutritious. It is good for the young and grown-ups alike and is very strengthening. Next time you order from your grocer see that

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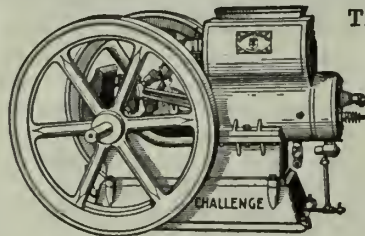
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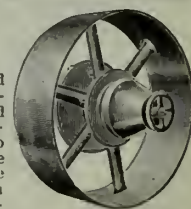
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keep him from the mind sickness. Ah, smell the woods, it is prayer—their breath—see this Indian hemp, pink bells the fairies might ring, if our ears were fine we might hear the music; the best worship is in the woods. I think the trees pray when they bend, and they are always harps for the wind."

"No, I do not like to pick flowers except for the altar on Sunday, I take their best from them in my heart, and leave them their roots, and the blossoms will be jewel boxes for the year to open next spring. But if you like, of course you may carry some home, there will be plenty left."

Mrs. Ware picked a few of the wild



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roses, "I will take them to a sick neighbor," she said.

"If you do not mind, I will go down the cliff. You would perhaps be tired. Rest then, here by the lake, I will return."

As Mrs. Ware rested upon the sand, watched the restful motion of the blue waves, and was soothed by their monotone, the cheerful optimism of the Fraulein lingering in her thought, she became aware of a happy group near her.

Presently a young woman seeing her, detached herself from the rest, and approaching her, said:

"Pardon me, Mrs. Ware, you do not know me; I am Lily Warren, I was Lily Bishop. I was one of the little girls who sat behind you in church when you were a bride, years ago. You were a perfect inspiration to us then. We used to talk about it and watch for you; I have always wanted to see you and tell you so, and how sorry we were when you stopped coming."

"I—what—why, how could that be? I never knew, I never thought I was anything to anyone except perhaps Ned, my husband, and I did not even know you; how could I be—"

"You lived, that was it—there was the most beautiful peace in your face—it was inspiration to us all!"

Back over the years went Mrs. Ware's thought. A struggling church with an inspired teacher for its pastor, to which she went Sunday after Sunday with Ned, walking a long way that they might add their small mite to the contribution box, tired always except for Ned's hand which rested her. How could she have been an influence to anyone?

"Well," she said at last, humbly, "if this be true I thank you for telling me. It surprises me, as a clod might be surprised if told there was the seed of a flower in it. I think I needed this. I have been praying to God to teach me how to be lonely; I seemed to have been of no use to anyone, any time, anywhere. It must have been my love for my husband you saw in my face."

"And we thought it God," said Mrs. Warren softly.—Alice Denison Wiley.

Health Needs for Rural Schools.

To the Editor: A hospital train for rural routes would help toward better living. The work would be educational and could be of great service to the rural schools. It seems sometimes as if our education needs the doctor of medicine more than it needs doctors of law and philosophy. We are slowly recognizing the worth of full health, the value in dollars and cents of the human animal. After a while we shall be ashamed of having scrawny-necked youngsters carrying our brand, we shall be proud of knowing how to judge "the human form, divine," as to strength and endurance. But before we reach this much desired state we shall have to call in the doctors.

The health and development law is being used for the benefit of city children, according to reports. It was supposed when the bill was passed that the rural teachers were keen for such work and would take special training to fit themselves for health supervision. So far as we can see the work of health supervision is not being done; there is much desultory discussion with school children about adenoids, per cent of deaths from tuberculosis and other dope that is harmful to the growing mind.

Not in our greatest flights of fancy can we call this health supervision. No physician handles his children thus. If we can get physicians on our county and State boards of education we shall add to the efficiency of our schools.

Dr. Wiley says, "We are becoming a



The Voice of Reconstruction

When a flood sweeps over a vast area, desolating the cities and towns which lie in its course, the appeal for assistance gets a unanimous response from the whole country.

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nation of dope fiends. With 60% of the enrolled school children in the rural schools are not we country people somewhat to blame for what this nation becomes?—Country Woman.

Smiles.

He—Ah, darling, may I be your captain and guide your bark down the sea of life?

The Widow—No; but you can be my second mate.—Life.

First Clerk—How many people work in your office?

Second Clerk—Oh, I should say roughly about a third of them.—London Sketch.

He—She has everything she needs to make her happy.

She—But it's the things she does not need that a woman needs to make her happy.—Rochester Times.

"This piece of lace on my dress is over fifty years old."

"It's beautiful. Did you make it yourself?"—New Orleans Times-Democrat.

She—It seems strange that you did not remember my face and yet you remembered my name.

He (awkwardly)—Well, you know you have an attractive sort of name.—Yonkers Statesman.

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MARTINEZ, CAL.

"Now, Bennie, here's the medicine, and here's the dime papa left to pay you for taking it."

"All right, mamma. If you take it and don't tell, I'll give you half."

THE MARKETS.

San Francisco, June 25, 1913.

(Unless otherwise noted, quotations represent prices paid to the growers.)

Cereals.

WHEAT.

The Eastern market has been easing off for some time, and now local prices have dropped rather sharply. The decline here is largely due to lower coastwise freights, which have brought in heavy offerings from the North. Trading is quiet.

California Club, cti.....	\$1.62½@1.65
Forty-fold	1.65 @1.70
Northern Club	1.62½@1.65
Northern Bluestem	1.72½@1.77½
Northern Red	1.60 @1.80

BARLEY.

Both spot and future markets are weakening, as buyers have so far shown only moderate interest, and prices were marked down again this week. More activity is expected shortly, but at present there is little feature to the market.

Brewing and Shipping...	Nominal
Choice Feed, per cti.....	\$1.35 @1.40
Common Feed	1.27½@1.30

OATS.

Supplies of red oats have been pretty well cleaned up, and the price is little more than nominal, as there is not much arriving at present. White oats are a little easier.

Red Feed	\$1.65 @1.85
Seed	Nominal
Gray	Nominal
White	1.70

CORN.

Considerable California corn is moving at steady prices, while Eastern yellow is easy, and finds only a limited demand here.

Cal. Yellow	\$1.55 @1.60
Eastern Yellow	1.50 @1.55
Eastern White	Nominal
Kafir	1.50 @1.55
Egyptian	1.70 @1.75

RYE.

Prices are quoted nominally as before, but there is very little business and no large amount is offered.

Rye, per cti.....	\$1.35 @1.45
-------------------	--------------

BEANS.

Lima beans show a further advance, and all supplies are firmly held, with a lively demand from many quarters. There is practically nothing remaining in first hands, and with a continuation of the present movement dealers' stocks will not last long. The Association is offerings new crop for September-October shipment at \$5.10. Other descriptions continue to move off fairly well, but in most lines there seems to be enough for all requirements, especially in the colored varieties, which are somewhat lower. Large whites also are quoted a little under the last figures, though small whites are firmly held.

Bayos, per cti.....	\$3.15 @3.25
Blackeyes	3.15 @3.35
Cranberry Beans	4.70 @5.00
Horse Beans	1.90 @2.15
Small Whites	5.40 @5.50
Large Whites	4.50 @4.75
Limas	5.75 @5.90
Pea	Nominal
Pink	3.00 @3.20
Red Kidneys	3.40 @3.60
Mexican Red	3.75 @3.80

SEEDS.

All values stand at the old level, but are largely nominal, as the current demand is confined to narrow limits.

Alfalfa	12½@ 14c
Broomcorn seed, per ton.....	\$27.00@28.00
Brown Mustard, per lb.....	3¼c
Canary	6 @6½c
Hemp	3 c
Millet	2½@2¼c
Timothy	Nominal
Yellow Mustard	Nominal

FLOUR.

Prices show no reflection of the recent slight fluctuation in the grain market, being steadily held at the old level.

Cal. Family Extras.....	\$5.60 @6.00
Bakers' Extras	4.60 @5.20
Superfine	3.90 @4.10
Oregon and Washington...	4.90

Hay and Feedstuffs.

HAY.

The movement on the part of local consumers to stock up for the season has

not yet started to any great extent, although it is expected that buying will increase materially within the next few weeks. All the grain hay that comes in finds a ready market, but the amount is light, the total arrivals for the week being less than for some time previous and consisting largely of alfalfa. Growers are still holding prices firmly in the country, and in some places small lots are being bought at the prices asked, though dealers are inclined to hold off. Local values stand as before, and dealers are not predicting any decline, though there is some doubt whether country prices will be maintained.

No. 1 Wheat, or Wheat and

Oat	\$18.50@20.00
do No. 2	15.50@18.00
Lower grades	15.00@15.50
Tame Oats	15.50@20.00
Wild Oats	14.00@17.00
Alfalfa	12.50@13.50
Stock Hay	9.00@11.00
Straw, per bale	45@ 95c

FEEDSTUFFS.

Feedstuffs are steady to firm at the old quotations, all lines finding a ready demand.

Alfalfa Meal, per ton.....	\$22.00@24.00
Bran, per ton	28.00@29.00
Oilcake Meal	35.50@36.50
Cocanut Cake or Meal.....	Nominal
Cracked Corn	34.00@35.00
Middlings	34.00@36.00
Rollod Barley	30.00@31.00
Rollod Oats	35.00@36.00
Shorts	27.00@28.00

Garden Truck.

VEGETABLES.

New yellow onions are now coming in and find a fair sale at the prices quoted, while reds are a little firmer than last week. Summer garden truck in general is weak, with heavy supplies in most lines, and it is hard to keep the supplies cleaned up from day to day. Cucumbers are lower, with increased offerings from Marysville, and green corn has dropped sharply, with heavy offerings from many quarters, though bay stock still brings fair prices. Asparagus is a little higher, but much of it still goes to the canneries. String beans and green peas are lower, and tomato prices have been cut sharply, 60c being about the best price for Merced stock. Green peppers are cheap, and eggplant shows some reduction.

Onions: New Yellow, sack..	75@ 80c
New Red, sack	60@ 65c
Garlic, per lb.....	3¼@ 4½
Cucumbers, per box.....	40@ 75c
Cabbage, per cti.....	40@ 50c
Carrots, per sack.....	75c
Cauliflower, per doz.....	40@ 50c
Rhubarb, box	75c@ 1.25
Green Peppers, lb.....	5@ 10c
Green Peas, lb.....	2½@ 4c
Asparagus, box	1.00@ 1.50
String Beans, lb.....	2@ 4c
Summer Squash, box.....	35@ 50c
Green Corn, sack	1.25@ 3.00
Okra, lb.	15c
Tomatoes, box	50c@ 1.00
Eggplant, lb.	6@ 8c

POTATOES.

The new crop is coming out in increasing quantities, causing some reduction in prices, though the supply so far has not been burdensome. Old Burbanks are a little stronger, and some Oregon stock is held at 75c to \$1.

Old River Whites, cti.....	55@ 70c
New River Whites	90c@1.50
Early Rose	1.00@ 1.25

Dairy Produce.

POULTRY.

Few changes have occurred this week, but these are downward, fryers and young roosters being a little lower. Hens are especially weak as for some time past, with heavy arrivals of both local and Eastern stock, and it is hard to dispose of the stock now coming in. The demand is naturally a little lighter at this season than earlier.

Large Broilers, per lb.....	21 @22 c
Small Broilers, per lb.....	21 @22 c
Fryers, per lb.....	22 @22½c
Hens, extra, per lb.....	15 @16 c
Hens, large, per lb.....	15 @16 c
Small Hens, per lb.....	14 @15 c
Old Roosters, per lb.....	10 @12 c
Young Roosters, per lb.....	22 @24 c
Squabs, per doz.....	\$ 1.50@ 2.00
Geese, per pair.....	1.50@ 2.00
Ducks, doz.	4.00@ 6.00
Turkeys, live	21 @22 c

BUTTER.

Butter has gone up a little in the last week, but the advance to 28½c could

not be maintained, as it checked the storage business, and arrivals are too large for current requirements. There is still a fair shipping demand, however, and present values are steady, firsts being a little higher.

Thurs. Fri. Sat. Mon. Tu. Wed.					
Extras ...28	27½	28	28	28½	28
Firsts ....27	27	27	27	27½	27½

EGGS.

After a ¼c advance from the prices of a week ago, prices for extras and selected pullets have been steadily maintained through the week, firsts standing as last quoted. Arrivals are moderate, and some dealers look for a further advance.

Thurs. Fri. Sat. Mon. Tu. Wed.					
Extras ...25	25	25	25	25	25
Firsts ....22½	22½	22½	22½	22½	22½
Selected					
Pullets...23	23	23	23	23	23

CHEESE.

Trading has been fairly active, but a slight advance a few days ago could not be held, prices being the same now as when last quoted. Flats are firm and Y. A.'s and Monterey cheese steady.

Fancy California Flats, per lb.....	15 c
New Young Americas, fancy.....	17½c
Monterey or Jack Cheese.....	15@15½c

Deciduous Fruit.

Prices on some lines of summer fruit show considerable decline from last week's figures, as supplies are increasing, but offerings of several varieties are lighter than usual at this season, and apricots and peaches, as well as cherries and new apples, show more or less firmness. Old Newtown pippins are pretty well cleaned up, and offerings are held at a higher figure. A few pears are appearing, finding a little demand as quoted. Gooseberries are higher and currants steady, but otherwise the berry market is weak all around, loganberries, blackberries, and raspberries all being sharply marked down. Strawberries stand about as before, with only moderate offerings, but the movement is not very heavy at the moment. Apricots are going a little better, with very moderate offerings of good quality, and peaches are also moving off well, with prices fairly maintained. Plums are lower, and black figs have declined considerably, owing to excessive offerings. Cantaloupes are being rushed in, and do not clean up well even at the reduced prices, though there is a good demand. Watermelons are lower, but so far do not receive much attention.

Loganberries, chest	\$ 3.50@ 6.00
Blackberries, chest	4.00@ 6.00
Gooseberries, drawer	50@ 75c
Raspberries, chest	6.00@10.00
Currants, chest	6.00@ 7.50
Strawberries:	
Longworth, chest	6.00@10.00
Other varieties, chest.....	4.00@ 7.00
Apples: New, box	1.00@ 1.50
Newtown Pippins	1.75@ 2.00
Pears, box	75c@ 1.00
Cherries:	
White, box	25@ 30c
Black, box	35@ 50c
Royal Ann	40@ 75c
Apricots, crate	90c@ 1.10
do lug box	1.25@ 1.75
Peaches, box	75c@ 1.00
Plums, crate	75c@ 1.25
Figs: Black, drawer	75c@ 1.00
Cantaloupes, large, crate....	1.00@2.00
Watermelons, per lb.....	2@ 3c

Dried Fruits.

Numerous changes are noted in dried fruit prices, as offers are being made for new-crop goods, though in most lines spot goods are about as before. The new-crop values are not as yet very well established, as there is considerable dickering between packers and growers, the latter in many cases refusing to take the prices offered. Business in the new crop is accordingly rather light, and old stock is moving slowly, the demand being held down pretty closely to consuming requirements. It is expected, however, that most fruits will be well cleaned up before any large amount of new stock appears. Evaporated apples are in strong demand and there is little left in the country, while higher figures are offered for anything that may remain. New apricots find offers at a range of 11 to 12c, and contracts are being made for all varieties of figs at the prices quoted. Spot prunes stand as before, though 4c is about the lowest offer that will be considered, and Santa Clara growers are said to be refusing offers of 4¼c. Old peaches are unchanged, and offers for new crop have

been raised slightly without bringing out much business. Some new pears are being contracted for as quoted. New Muscatel raisins find offers of 3¼c, and some packers have secured a fair tonnage at this figure, though there is little business at present. New prices for the seedless varieties are a little below those recently quoted. The spot movement of raisins is light, but there is a little more inquiry. The New York Journal of Commerce says: "Though advices received from the Coast reflect a firm feeling in all varieties of California fruits for future or prompt shipment, local buyers continue to withhold orders. Here and there a purchase of a car or two for early shipment is being made, but the local distributors as a rule have seemed to have adopted a waiting policy, not that they expect that they will be able to cover their requirements when the stock is needed, but because they feel confident that prices at that time will be little, if any, higher than they are now. In the New York spot market, stocks of most varieties are getting into small compass, according to current report, as the consuming demand of late has been above normal because of the scarcity and relatively high cost of fresh fruits, notably oranges and berries. In futures more interest is shown by buyers in this section in prunes than in anything else. But the demand runs mainly to large sizes, and there are offered sparingly and at a large premium on the general f. o. b. four-size bulk basis price. Offerings of new crop peaches for August-September shipment at 4¼c for standards, 5c for choice, 5½c for extra choice, 6c for fancy, 6½c for extra fancy and 7c for Jumbos, f. o. b. Coast shipping point in 50-pound boxes, bring out few, if any, orders from the local jobbing trade. The consuming demand in this part of the country now is light and will not start in for several weeks yet; hence jobbers of New York and vicinity are not in a hurry to anticipate requirements. On spot goods the market is firm, owing to limited supplies, but there is little business to report. Apricots are inactive, and prices on spot goods are inactive. Little interest is shown in futures, which offer on the basis of previous quotations. Raisins are dull as usual at this time of the year, with little demand for spot or future goods. The market seems to be in a state of waiting for the announcement of prices by the Association."

Evap. Apples, 1912 crop, per lb 5	@ 6 c
Apricots, 1913	11 @12 c
Figs: White, 1913	3 @ 3½c
Black, 1913	2½@ 3 c
Calimyrna, 1913	4½c
Prunes, 4-size basis, 1912.....	3 c
do 1913	4 c
Peaches, 1912	3½@ 4½c
do 1913	4 @ 4½c
Pears, 1913	5 @ 7 c
Raisins (in sweatbox):	
Loose Muscatels, 1912.....	3 c
do 1913	3½c
Thompson's Seedless, 1912..	4½c
do 1913	4 c
Seedless Sultanias, 1912....	3½c
do 1913	3 c

Citrus Fruits.

Prices on citrus fruits advanced very materially the latter part of last week, especially on valencia oranges and good lemons. It is stated that first-class oranges are bringing \$5 and \$5.25 f. o. b. California, while on the Eastern auctions the prices are correspondingly good.

At the New York auction of Monday, June 23rd, valencias averaged from \$7.05 down. The average prices were around \$5, though some poor fruit sold as low as \$2.65. At St. Louis the same day, lemons sold for \$8.40 and \$8.20 per box. At Boston the highest average on valencias was \$7.25 and the lowest \$2.80 per box. Seedlings brought \$3.75 and \$3 per box.

Oranges are still going East at the rate of 60 cars per day, and lemons have been gaining. Last week 92 cars were shipped in six days. Total shipments of oranges for the season, to June 21st, were 11,523 cars, as against 24,602 cars to the same date last year. Lemon shipments were 1,655 cars as against 4,121 cars to June 21st in 1912.

Trading is rather light in the San Francisco market, owing to the vacation season and the competition of summer fruits, but prices are firmly held. Both navel and valencia oranges are higher, and lemons and lemons are again being marked up sharply. Mexican limes being out of the market at present.

Oranges, per box—
Valencia, choice to fancy...\$ 4.50@ 6.50

Napels, good to fancy....	2.50@ 4.50
Grapefruit, seedless	2.50@ 5.00
Lemons: Fancy	7.50@ 8.00
Lemonettes	5.50@ 7.00
Limes	Nominal

Nuts, Honey, Hops, Etc.

NUTS.

There is nothing new in this line, as the market is bare of old stock, and new prices on almonds are not expected for several weeks.

Almonds—	
Nonpareils	17½c
I X L	16½c
Drakes	12½c
Langudoc	11½c
Hardshells	8 c
Walnuts, 1912 crop—	
Softshell No. 1.....	16 @16½c
Ne Plus Ultra.....	15½c
Hardshell No. 1.....	15 @15½c
No. 2	10½c
Budded	17 c

HONEY.

A few odd lots are coming in all the time, but with good spot demand and reports of light production, prices are firmly held at about the former level.

Comb, white, new	15 @17 c
Amber	11 @12 c
Dark	9 @10 c
Extracted, white	8 @10 c
Amber	6½ @ 7 c
Off Grades	5 @ 6 c

BEESWAX.

There is no trading of any consequence, and several odd lots are held by local dealers, but prices on desirable lots are well maintained at the old figures.

Light	30 @31 c
Dark	26 @28 c

HOPS.

There is still too much uncertainty in regard to the crop to permit much desire for business among either growers or buyers, and sales of the new crop have so far been moderate. Values stand as before.

1912 crop	12½ @16 c
1913 contracts	13 @15 c

Live Stock.

Prices show no further decline, and most lines of live stock are fairly firm. Dressed beef and mutton are hardly as strong as for the last few weeks.

Grass-fed Cattle—	
Steers: No. 1	6¾ @ 7 c
No. 2	6½ @ 6¾c
Cows and Heifers: No. 1....	5¾ @ 6 c
No. 2	5¼ @ 5½c
Bulls and Stags.....	2½ @ 4½c
Calves: Light	6½c
Medium	6 c
Heavy	5 @ 5½c
Hogs: Grain-fed, heavy....	7 @ 7¼c
150 to 250 lbs.....	7¼ @ 7½c
100 to 150 lbs.....	7 @ 7¼c
Prime Wethers	4¾ @ 5 c
Ewes	3½ @ 3¾c
Lambs: Suckling	5½ @ 5¾c

DRESSED MEATS.

Steers	12 @12¼c
Heifers	11 @11½c
Veal, large	10 @11 c
Small	12½ @13½c
Mutton: Wethers	10½ @11 c
Ewes	9 @ 9½c
Suckling Lambs	11 @11½c
Dressed Hogs	12½c

WOOL.

Some wool has been sold at the prices quoted, but there is still a good deal in growers' hands, and with buyers taking little interest, there is hardly any business at present. Values are accordingly uncertain, and it is doubtful whether sales could be made at the quoted prices.

Spring clip:	
Southern mountain, free..	8 @11 c
Northern, year's staple....	13 @14 c
Humboldt, year's staple....	18 @19 c
do short	13 @14 c

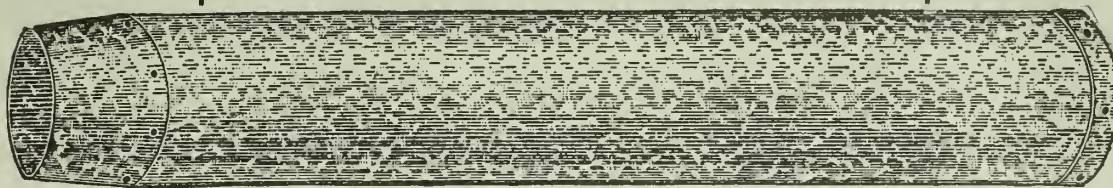
HIDES.

This market remains very quiet, values being about as before, but with a rather easy feeling, and buyers take little interest.

Heavy Steers, over 56 lbs.	14 c
Medium	13 c
Light Steers, under 48 lbs.	12 @13 c
Heavy Cows, over 50 lbs..	12 @13 c
Light Cows, 30 to 50 lbs..	13½c
Kip	14 @15½c
Veal	17 @18½c
Calf	17 @18½c
Dry—	
Dry Hides	24 @25 c

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Dry Kip, 10 to 15.....	24 @25 c
Dry Veal, 5 to 10.....	29 c
Dry Calf, 7 down.....	29 c

HORSES.

Another good-sized lot of draft and all-purpose horses from Nevada is offered this week, but the local market shows the same lethargy as for some time past. The prices realized are considerably lower than those prevailing early in the season, even heavy drafters failing to bring the old quotations, while smaller stock is decidedly weak. The high cost of feed is said to be preventing the usual interest on the part of buyers. It is impossible to make a profit in this market on stock bought in the country at anything like the prices which have prevailed until recently.

Heavy drafters, 1700 lbs. and over	\$275@325
Light Drafters, 1500 to 1650....	225@250
Chunks, 1350 to 1500 lbs.....	175@215
Wagon Horses, 1250 to 1350....	135@175
Delivery Horses, 1050 to 1250..	100@120
Desirable Farm Mares.....	60@ 80

MULES.

1200 lbs.	\$200@250
1100 lbs.	150@200
1000 lbs.	125@175
900 lbs.	75@125

PUBLISHER'S DEPARTMENT.

REACHING FARM POPULATION EFFECTIVELY.

Before the delegates from the advertising clubs of America, in convention at Baltimore this month, G. B. Sharpe, the advertising manager for the De Laval Separator Co., made an address giving in it his best thought and experience. Here are a few paragraphs only, taken from the speech, as we have not room to print it entire:

"As one of the largest buyers of farm paper advertising in the country, the first thing I want to know about a farm paper is not its circulation, but the service it is rendering its readers through its editorial columns. The next thing I want to know about it is its attitude toward objectionable advertising; and then I want to know whether the subscribers take the paper because they feel that they need it, or whether they practically get it for nothing.

"Now don't get the idea that I have forgotten circulation. When I consider the advisability of putting any farm paper on my list, I want a sworn statement of actual net paid circulation from the publisher; in fact, I want to satisfy myself in every way that he has the circulation he claims. The fact that I want to emphasize is that I lay a great deal of stress upon quality of circulation in any farm paper, because it has been my experience that a statement of mine regarding the superiority and quality of my goods in a publication which deserves the farmer's confidence has vastly more weight than the same statement in a publication which has no standing with its subscribers or sticks to the motto 'caveat emptor' (let the buyer beware).

"The advertiser who wants to reach the great aggregation of buyers on farms whose purchasing power is rapidly growing greater, and whose requirements are every day becoming more diversified, will find that there is only one royal road to the farmer's home, and that this broad avenue is the farm press.

"The farm paper is not only closely

read by the farmer, but by his wife and family as well. The well-edited farm paper always has something to interest the farmer's wife and the farmer's children, and the household and juvenile departments of some of our well-edited farm papers are just as interesting and just as carefully prepared, as in our leading magazines and national publications. Remember, too, that the farmer's wife occupies a position in relation to her husband's business that has no parallel in other walks of life. She is interested in every plan for betterment or improvement, and seldom a move is made in which she is not consulted; besides, the poultry and the dairy are usually her special care. Is it small wonder, then, that she reads the farm paper as closely as her husband?

"I believe that the farm field presents the greatest opportunity for the building up of new trade which exists in this country today, and the manufacturer and

advertiser of any article, I care not whether it be a cake of soap or a grand piano, who is not cultivating this field through the columns of the farm press, is neglecting his very best opportunity for increasing his business."

Mr. Sharpe must have had the PACIFIC RURAL PRESS in mind when he made the above speech.

To make the application of the address to the RURAL PRESS, we believe that we can justly say that this paper fills the bill as to what Mr. Sharpe says a good farm journal should be. We know the paper is thoroughly read by the very best farmers of California. Then one more step—is the farmer of this State worth going after as a buyer? We think he is. In 1910 the census gave the number of farms in California as 88,000. During 1912 there was produced in the Golden State \$410,189,718 worth of fruit, dairy, stock, agricultural and other farm products. Figure the per capita for yourself.

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